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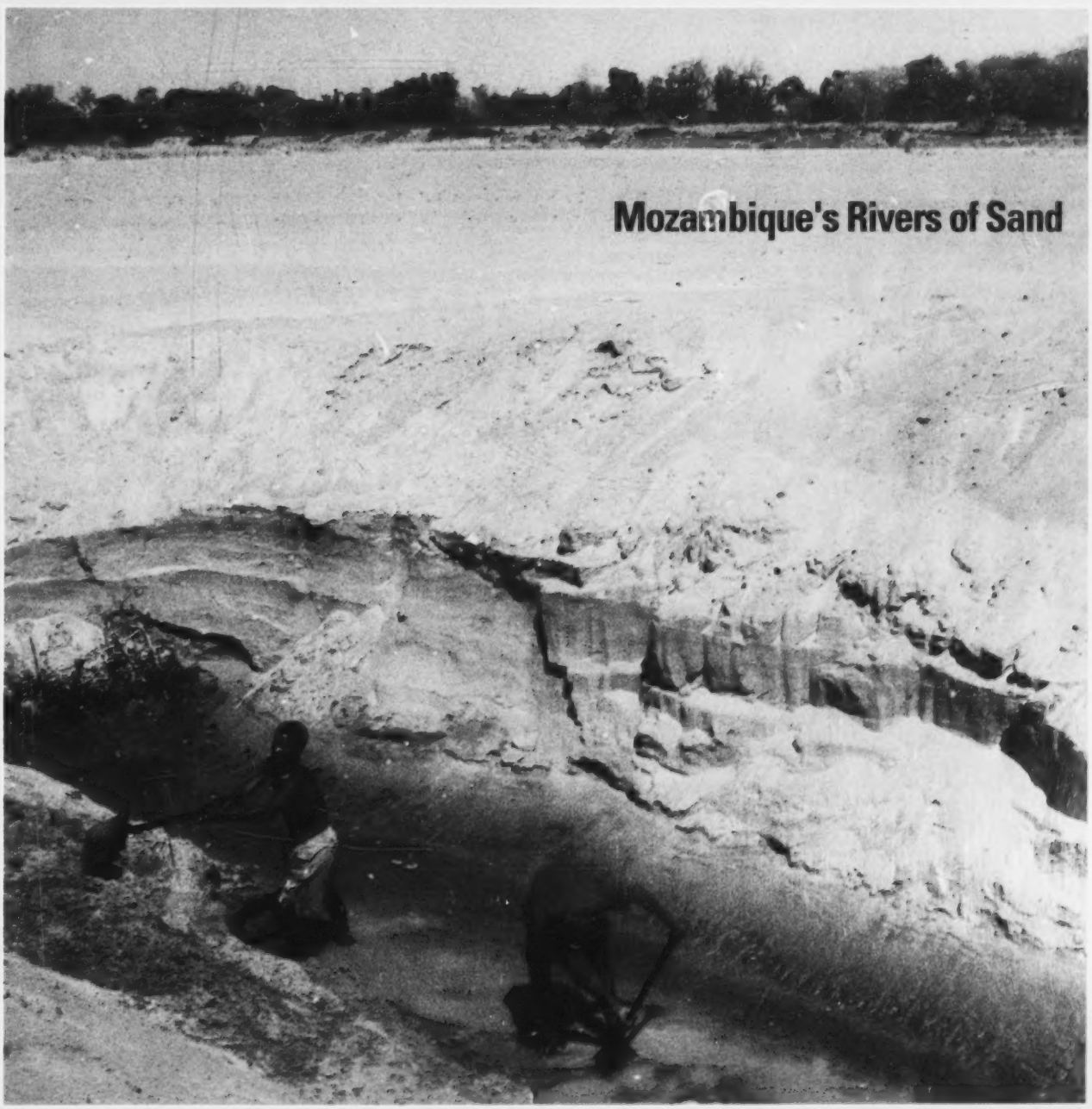
THE HUMAN DEVELOPMENT MAGAZINE



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Cover photo of Limpopo River by Stephenie Hollyman / Gamma-Liaison.

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READEX
FICHE

MOZAMBIQUE'S RIVERS

By David Orr
with reporting by Fernando Goncalves

Alfredo Manuchie/Arm

Residents in southern Mozambique draw water from Incomat river bed, which has been reduced to sand.

OF SAND

Sixteen years of civil war and the century's worst drought have brought unparalleled hardships to Mozambique. But in what seems to be an ironic twist of fate, the drought's severity has increased this country's thirst for peace.

Maputo, Mozambique — Late on this July afternoon, people from the *bairros*, the fishing and farming communities on the outskirts of Maputo, are leaving their homes and travelling by foot along the red sand roads that lead to the Mozambican capital. Even though there is word that a cease-fire may be soon at hand, they fear an attack by rebels from the Mozambican National Resistance (Renamo), and are seeking safety for the night. The lucky ones have relatives in town. Those not so fortunate sleep in makeshift shelters at the roadside or on open ground.

The danger of attack, whether by rebels or bandits, is all too real. Earlier this year, Graca Fernanda, 21, was coming home from work at a cake shop in Machava, near Maputo. The car in which she was travelling was raked by machine gun fire and she was hit in the arm and legs. She was then stripped of her clothes and watch.

Graca has been fitted with an artificial limb at the Central Hospital to replace her right arm, which had to be amputated below the shoulder. She still has pins in her left leg, which was severely fractured.

With people deserting the surrounding countryside, the population of Maputo has swollen from one million to an estimated two million inhabitants. Lalita Zicale and her family are typical of the new arrivals. Early this summer, Renamo rebels attacked their fishing village just up the coast from Maputo. Twelve people died in the raid and the *bairro* is now all but deserted.

The Zicales are among 200 families packed into the squalid and over-crowded rooms of the Villa do Algarve which, in colonial times, was headquarters for PIDE, the Portuguese secret police. The Zicales were once proud shrimp fishermen with their own home and boat. Now, Mrs. Zicale must sell roasted peanuts on the streets of Maputo to keep her family fed. As if in mockery of their former life, a beautiful ceramic mural on the villa's terrace depicts a fishing craft plying the bountiful seas.

All over Mozambique, people have fled the rebel-held hinterlands in droves for the safety of government-controlled towns and villages. Adding to their woes, the worst drought this century has turned once full-flowing rivers into wide highways of sand. A second year without rain and 16 years of civil war have driven more than five million Mozambicans – one third of the population – from their homes in search of food and safety. Of these, an estimated 1.5 million have become refugees in neighbouring countries.

In May, the Mozambican government released its first official figures of drought deaths: 48 dead in the central province of Sofala. With no way of measuring the situation in remote areas, the real figure has to be far higher. The United Nations and other international aid organizations announced that more than three million people were in need of emergency relief.

War and successive natural disasters have plunged this southeast African nation into absolute poverty. With no rains this season, crops have been lost completely in the central and southern regions.

The lack of rains has also resulted in the evaporation of water sources. Flying over the Limpopo, one of the largest rivers in southern Mozambique, one can witness the devastating effects. People can be seen digging along the river bed, but the small amount of water they find cannot last long, as the ground grows harder by the day.

Health authorities also say that this water is unsafe for human consumption, and that deaths from cholera have occurred as a result. in one village in the Gaza province in southern Mozambique, at least 20 people died one week in May on account of a cholera outbreak. What was more disturbing was that the villagers had no idea of the causes, symptoms or treatment of the disease.

Between November 1991 and June 1992, there were 9,263 reported cases of cholera in six Mozambican provinces, 140 resulting in death, according to the Ministry of Health. Of these, close to a third occurred in Gaza alone.

For the 26,000 people living in the district of Chicualacuala, close to the Zimbabwean border, water has to be brought by train from the district of Chokwe, over 300 kilometres away. The terrain in Chicualacuala is so dry and parched that not even the drought-resistant crops, which authorities encourage people to grow, are surviving. Temperatures have reached a peak of 44 degrees Celsius, three degrees higher than in 1983 when the last drought in Mozambique took 100,000 lives.

Graca Fernanda is fitted for an artificial limb in a Maputo hospital.

As food stocks have run out, residents in Chicualacuala have resorted to eating wild roots and shrubs, and are harvesting a fruit called *timulu*, which is bitter and unfit for human consumption. "We have to boil it twice and strain it before we can drink the resulting solution," says one resident, Armando Sitoeone.

In another village, Chibabava, in Sofala province, hundreds of *recuperados*, people freed from Renamo-held territory by the army, huddle under makeshift shelters on this hot summer afternoon. A man sits by an open fire and boils a pot of green leaves. "*Gamba, gamba*," says the man. "Pig food," he adds, by way of explanation. "I used to feed this to my pigs. Now I have to eat it myself."

In the district of Chokwe, which is the largest rice-producing area in southern Mozambique due to irrigation made possible by the Massingir Dam, production of rice was expected to reach 30,000 tonnes in 1992. But in February, when it became clear that the rains had failed, this estimate was brought down to just under 6,000 tonnes.

Prime Minister Mario Machungo has launched an emergency appeal, warning that many are facing starvation and will perish from hunger unless the international community responds fast and effectively.

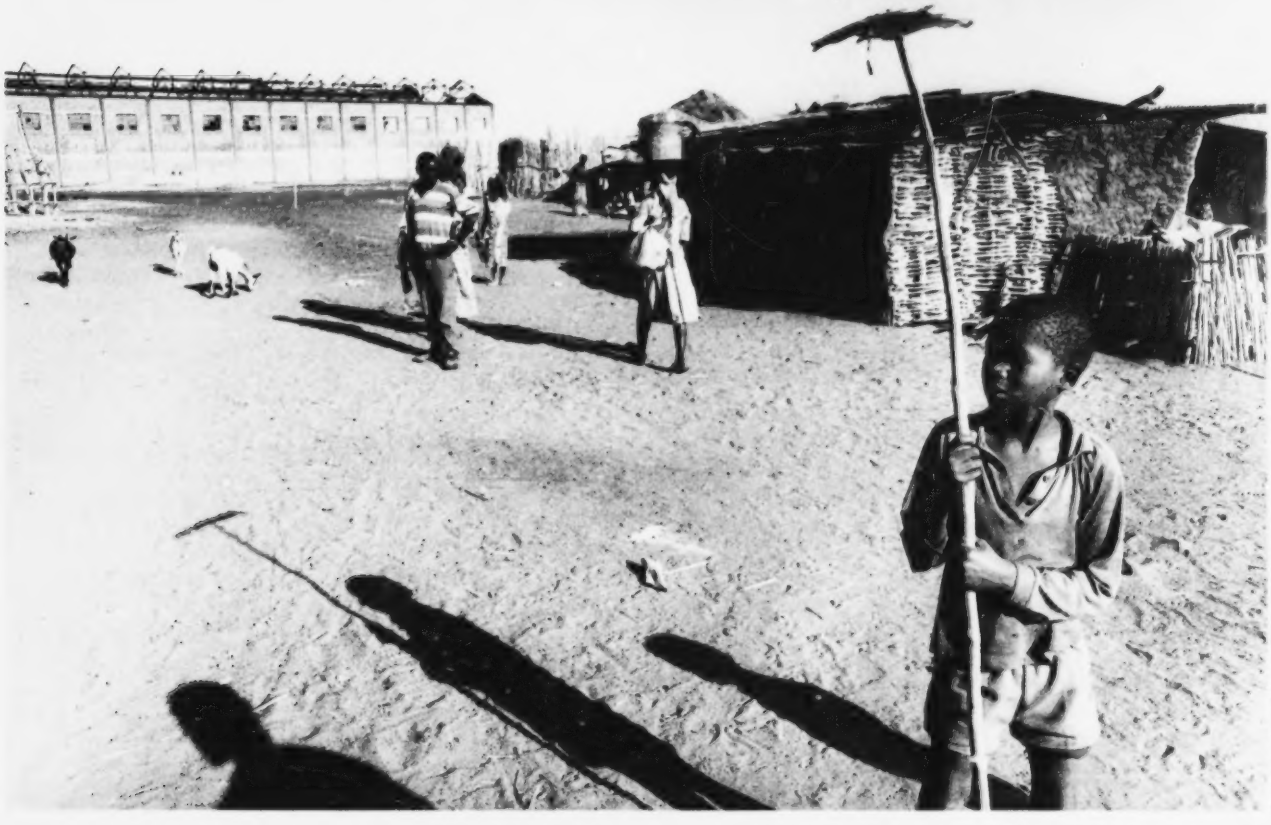
He estimates that the country will need some 1.2 million tonnes of grain, six per cent of which the government can afford to buy itself. The rest, he says, will have to come from international donors.

"People are leaving their homes in search of food, and this is causing tremendous social dislocation," says Peter Simkin, resident representative of UNDP in Mozambique and special coordinator of the UN Emergency Relief Operation there. As part of its response, UNDP is preparing regular needs assessments for donors and coordinating the safe arrival and distribution of food and other emergency supplies. It is also providing logistical support to the government for emergency operations and is reporting to donors on how contributions have been used.

"In the next few weeks we will start seeing people die of hunger," Mr. Simkin warned in July. "This apocalyptic situation cannot be allowed to continue. Rural communities had no agricultural production this year, creating a situation far more serious than before. I think we might even see people die of starvation in cities – not because there is no food, but because many lack the money to buy it."

For this reason, the UN is considering distributing food to poor city dwellers as part of a new urban programme. "But this brings us back to the problem of accurate data collection," Mr. Simkin says. "How do we know how many people there really are within this category?"

Recently, because of the drought, the plight of people living in Renamo-held areas became a major concern because inad-



Photos by David Orr

equate security made access virtually impossible. Drivers of trucks carrying urgently-needed grain were reluctant to stray anywhere outside the Beira corridor which, under an agreement with Zimbabwe's government, is protected by Zimbabwean troops. For example, in May and June, 15 fully-loaded vehicles transporting relief food were looted and destroyed by the rebels in central and southern Mozambique.

As people began fleeing Renamo-held territories in ever greater numbers, and with their own fighters deserting, the rebels realized that their power base was rapidly being eroded. In July, after intense negotiations in Rome, came the welcome news that Renamo and the government had agreed to assure safe passage to unarmed relief convoys carrying UN or Red Cross identification. And on 8 August, Mozambican President Joaquim Chissano and Rer amo leader Alfonso Dhlakama agreed to sign a cease-fire by 1 October. "Renamo wants what we want: freedom and democracy," said President Chissano. "There is no reason for this war."

The delivery of relief supplies to areas previously inaccessible would begin as soon as possible, according to the UN's World Food Programme. Almost immediately, the International Red Cross began dispatching food to war zones along the Beira corridor in

Stephen Lewis/Canapress Photo Service

Top: **A generation of young people in Mozambique have been deprived of a normal childhood.**

Bottom: **Villagers dig for water in the dry Limpopo river bed.**

central Mozambique, where 100,000 civilians were isolated. But Renamo, fearful that the humanitarian operation might be used as a cover for military action, had difficulties reaching an agreement with the government on the precise routes to be taken by the convoys. And security conditions continued to hamper free movement in all but a few areas. There was also the problem of banditry and the possibility of mines.

"We'll be going into communities which haven't seen outsiders for six or seven years," says Dan O'Dell, UNICEF representative in Maputo. "They won't trust us at first, and we will have to build confidence slowly. It could take months before we reach the outlying areas."

Adding another element of risk to these missions is the question of how much control Mr. Dhlakama actually has over the rebel force of an estimated 20,000. In reality, no one can guarantee that more isolated and independent units will respect UN and Red Cross insignias, not to mention bandits.

Mr. Simkin points out that the main motor behind the Rome talks was the drought. By early summer, the situation in Renamo-held areas had become so acute that Mr. Dhlakama had no option but to negotiate. But while the relief agreement and the planned cease-fire are regarded as the first stages in the peace process, a number of difficult issues remain to be resolved. These include the composition of a new national army and security guarantees for Renamo's political future.

Revitalizing the economy and healing psychological wounds are other urgent priorities. During the 16-year conflict, local economies have been ruined because of attacks on factories, shops and farms. Marromeu, a thriving town of 90,000 on the Zambezi River, once bustled with economic activity. But in 1986, during a massive Renamo offensive, its sugar factory was destroyed. Deprived of their main source of income, and afraid to go out and till the fields as before, the people lost their sense of security as well as their livelihoods.

The drought dealt the fatal blow, and today Marromeu is a sad, demoralized place whose inhabitants are largely dependent on outside help for their survival. The Zambezi is still flowing, but the water level is low and with no pumps the land cannot be irrigated. Even the local officials seem listless and without will.

In a cruel parody of the social dislocation that has taken place in this town, cement imitations of traditional thatched mud huts have been built opposite the now-defunct sugar factory. Lined up in neat, sterile rows, they present sullen, graffiti-scrawled walls to passers-by.

Stephanie Hollyman/Gamma Liaison

A train carrying water supplies pauses near Mabalene.

To gain local intelligence, the rebels routinely kidnapped villagers from places like Marromeu, which thinned local populations even more. Some, like 52-year-old Pedro Manuel from Muchicavo in Sofala province, were taken to act as fighters and porters. For seven months Mr. Manuel was attached to a Renamo unit, taking part in raids and carrying supplies. He was finally captured by Zimbabwean soldiers and released. Today, he and his family are among 9,000 people at a camp for displaced persons in the village of Inchope in the Beira corridor.

A 1992 report by the human rights organization, Africa Watch, cites an incident earlier this year in which eyewitnesses claimed that more than 100 child fighters took part in an attack on a Maputo suburb. Studies by the US Defense Intelligence Agency and by Save the Children Fund, quoted in the Africa Watch report, reveal the devastating psychological consequences for children who have been forced to bayonet other children or attack old people.

"Mozambique will have a generation of children who have always been on the move. There are countless thousands of children here who have never known a normal life," says Sam Barnes, a UNDP information officer in Maputo. "What people need first of all is security so they can move back to their villages."

The displacement of millions means that whole communities, once self-sufficient, have been torn apart and made dependent on aid. Following the cease-fire it is hoped that most adults will eventually be able to resume their former livelihoods. But for the children who have grown up with no education to speak of, and with no skills except, perhaps, the use of firearms, the way ahead is not so clear.

"What has happened is that a sort of rural proletariat has grown up," explains Ms. Barnes. "These are young people who grew up in the country and drifted into district towns. They survive off relief food, doing a side hustle here and there, selling beer or cigarettes. They haven't been to school and they have no understanding of how a rural economy works."

There are fewer than 3,000 university-trained people in Mozambique. A maximum of 800 university students in all disciplines graduate each year. Less than 15 per cent of senior civil servants have a university education while one-third completed only primary education.

The provision of education and vocational skills for young people is a major concern of UNDP in Mozambique. The task is a huge one, according to Ursula King, UNDP deputy resident representative in Maputo.

"A large part of the government's investment since independence in 1975 has gone

David Orr

Food supplies arrive at Inchope in Sofala province.

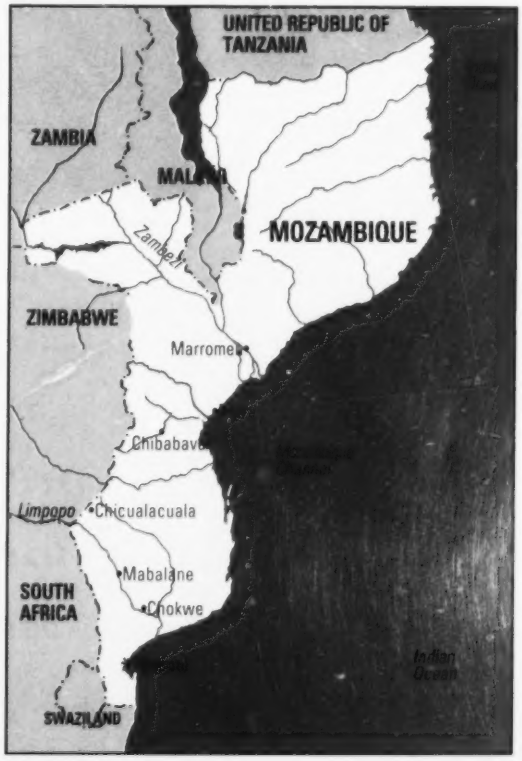
into transport and communications and into improving access to the neighbouring countries," says Ms. King. "This has been done for sound trading reasons, but it has been of little direct benefit to the people. In fact, the government programme has in many ways made poverty worse. Health and education budgets have been increasingly squeezed."

Another blow to social services in Mozambique has been the withdrawal of financial and vocational support from former Eastern bloc countries. Long-standing agreements for the training of teachers and doctors terminated at the end of 1990. At the start of last year, some provinces lost all their medical and health care personnel in one fell swoop. Presently, there is only one doctor for each 46,000 people in Mozambique.

UNDP has allocated US$93 million for its next five-year country programme in Mozambique. "We'll be moving to support poverty alleviation, and to shift from emergency relief to rehabilitation," says Ms. King. "We'll also be keeping a financial reserve for national capacity building and for supporting the democratic process."

In one project aimed at helping communities cope with the hardships brought on by the war, UNDP and the World Food Programme are assisting five provinces –

"We'll be moving to support poverty alleviation, and to shift from emergency relief to rehabilitation."



Nampula, Manica, Sofala, Tete and Zambezia – in upgrading emergency management and planning capabilities. With $1.2 million in funding from Sweden and Switzerland, the project has fielded advisors to improve data collection and management of relief activities in these areas. To expand the effort to four provinces in the south that have been hard-hit by the drought, Norway recently committed an additional $800,000 to the programme. The advisors are also helping local officials plan rehabilitation and reconstruction programmes to be set in motion once peace is assured.

UNDP is also working with the Ministry of Agriculture, the Food and Agriculture Organization of the UN (FAO) and other donors to secure funding for a national seeds and tools distribution programme that will enable displaced persons to begin food production as soon as minimum levels of security and stability are achieved.

Addressing another urgent concern, the United Nations system has begun working with the government to plan the formation of a new Mozambican army and to resettle demobilized soldiers – many of whom will be in need of homes and job skills. The government has already indicated to donors that in the first stage it intends to demobilize an estimated 45,000 soldiers and officers as well as 6,000 civilians working for defense.

By all indices – infant mortality, life expectancy, per capita income, literacy and medical care – Mozambique remains one of the grimmest places on earth. But despite the toll taken on the nation's morale by years of civil war and drought, there is a glimmer of optimism about the future, for the Mozambicans are a resilient people.

In Mabalane, a small town in the southern province of Gaza, there is a railway station that provides a vital link with Zimbabwe, a landing strip for light aircraft and a concrete water tower which, in good times, holds more than enough water for the local population. Though the nearby Limpopo River (described by Rudyard Kipling as "great grey green greasy") is no more than a sandy remnant of its former self, local people have been able to coax a trickle from its dehydrated depths by sinking a well at its edge. By installing a pump, they have drawn enough water to irrigate the immediate area. Maize, onions, cabbage and other vegetables are growing in carefully tended fields.

John Isaac/UN

Abundant pre-drought harvests in northern Mozambique.

Despite the toll taken on the nation's morale by years of civil war and drought, there is a glimmer of optimism about the future, for the Mozambicans are a resilient people.

The last attack on the town was at the end of 1991. Since then, Zimbabwean troops have set up camp to protect the railway, which, when unassailed by attacks, carries vital commodities between the two neighbouring countries. Once again relief deliveries are reaching the town which, like other population centres in Mozambique, has had to cope with a large influx of peasants from the surrounding countryside.

There is not much that augurs well for the prosperity of Mabalane. But there is something in the smiles of its children, in the jauntiness of people's stride, that holds promise for a country ravaged by the depredations of man and nature alike.

Among the huts by the wayside, sitting women display little heaps of tomatoes for sale. A child plays with a wire mesh model of an airplane. Another pushes a toy truck with little wooden wheels.

Over the years, this town has been made popular by television crews who have journeyed here to record the tragedies wrought by unrelenting drought and civil war. "We have become famous here," says Moises Ginge, a local official who is visibly proud of Mabalane's unfortunate but well-deserved notoriety. Like others here, Mr. Ginge looks forward to the day when the Limpopo once more nourishes the land and when the two tanks that guard the airstrip are but rusty reminders of a conflict long past. ■

David Orr is a London-based writer who reports frequently on Africa.

Mozambican journalist Fernando Goncalves lives in Maputo.

Outwitting one advance after the next, malaria is spreading with impunity throughout the developing world, especially in the poorest countries. In the absence of a miracle cure, scientists and public health officials are stressing the importance of prevention and control.

An Ancient Foe Gains Ground in a Modern World

By Siddharth Dube

Djoumouna, Congo— For aeons, humans have battled the malaria parasite and its winged carrier, but both have proved to be implacable foes, defeating even this century's far-reaching advances in science. Buoyed by technological breakthroughs in the 1950s and 1960s, experts believed that DDT, the lethal insecticide, and chloroquine, a powerful drug, would be "magic bullets" to defeat the mosquito and malaria. But these hopes were soon dashed as DDT grew ineffective in parts of the world, and as the malaria parasite developed resistance to the drug.

Now malaria is astonishing the medical community by making a comeback, spreading fast and with a vengeance in many developing countries. According to the World Health Organization (WHO), malaria is present in more than 100 countries, infecting an estimated 267 million people and claiming two million lives each year.

"Malaria is a deceptive and very smart foe," says Frank Hartvelt, deputy director for global and interregional programmes at the United Nations Development Programme (UNDP). "It is out-pacing science and giving modern medicine a tremendous challenge. More people are sick and dying from malaria than from AIDS — even though AIDS is potentially much more devastating."

Fighting the disease — at both the local and global levels — was the topic under discussion at the first international conference of health ministers on malaria, held in Am

P. Pittet/WHO

Blood tests reveal the presence of malaria and are used to prescribe appropriate treatment.

Searching for Solutions

UNDP is working with other multilateral and bilateral donors in fighting malaria at local, regional and global levels. In Bangladesh, for example, where increasingly drug-resistant falciparum malaria has led to a surge in deaths, international assistance is helping the government develop cost-effective control strategies. These include spraying programmes and early treatment as well as the promotion of community involvement in local initiatives. Bangladesh is also sharing important research on drug resistance with a UNDP-funded regional programme for Asia that monitors parasite sensitivity to anti-malarial drugs.

Across sub-Saharan Africa, United Nations Volunteers are helping communities develop local responses aimed at controlling the disease. In the Gambia, UNDP is supporting field-testing of bed-nets impregnated with insecticide. These have already proven far more effective than traditional bed-nets in reducing the number of mosquito bites.

Development of new anti-malarial drugs and vaccines to prevent infection is a priority of the Special Programme for Research and Training in Tropical Diseases (TDR), supported by WHO, UNDP, the World Bank and other development partners. TDR's work compensates in part for the limited research undertaken by pharmaceutical companies, which have found anti-malarial drugs unprofitable.

More than 5,000 scientists from 135 countries are part of TDR's network, which has made major contributions to malaria control since its creation in 1974. TDR scientists played a central role in developing mefloquine and halofantrine, two promising drugs against chloroquine-resistant malaria. They have also perfected field kits to test the sensitivity of malaria parasites to certain drugs, and have improved biological methods for reducing mosquito populations. Many of these breakthroughs have come from research institutes in endemic countries, including the promising biological pesticide being developed by Indian scientists at the Pesticides Development Centre in New Delhi (see opposite page). — **S.D.**

sterdam in October. Sponsored by WHO, UNDP and other donors, the conference drew experts from nearly 100 countries.

In a race against time, researchers are seeking new drugs to replace those that have become largely ineffective. They are also pursuing the long-dreamed-of vaccine. But in the absence of both, health officials are stressing the need to improve primary health care services, to better educate people about the importance of preventive measures and to encourage infected people to seek treatment early. The search is also on for ways of making personal protection devices — such as bed-nets — more reliable and affordable to the poor.

Malaria takes its greatest toll in sub-Saharan Africa, where 80 per cent of the world's clinical cases and 90 per cent of malaria deaths occur. Excruciating fevers and brain and lung complications associated with the disease kill up to a million African children each year. An even greater number of deaths come from malaria-related anaemia and low birth weights, WHO estimates. Africa's growing urbanization has also led to a surge in fatalities among adults, who often fail to develop the immunity that helps to protect inhabitants of endemic rural areas. A bout with malaria usually leaves people incapable of working for several weeks; economists blame it for slowing the development of entire nations.

The effects of malaria can be seen in villages such as Djou-

mouna, a short bus ride from Brazzaville in the Congo, which is called the "malaria capital of the world" by residents and health experts alike. Here, it is not unheard of to be bitten by mosquitoes as many as 100 times a night. And nearly every mother has a child who has died from malaria fever, or who is chronically ill from the disease. "What can we do?" asks Pauline Makembi, whose own child is visibly anaemic and weak from the disease. "There are lots of mosquitoes here."

Several factors are responsible for making malaria's impact so devastating here and in other parts of sub-Saharan Africa. The region is home to the most virulent species of the malaria parasite and to the fiercest mosquitoes. The type of malaria contracted here often progresses from infection to life-threatening complications rapidly, unlike the form common to South Asia.

Africa's main malaria mosquitoes, the Anopheles gambiae and Anopheles funestus, seem designed only to spread the disease efficiently. More than other mosquitoes, they feed primarily on human blood, need frequent meals and inject large quantities of malaria-bearing saliva when feeding. These two African mosquitoes are also frighteningly robust, capable of withstanding the harshest of environments.

Making conditions ripe for these killer mosquitoes in sub-Saharan Africa is poverty, which experts say is a major impediment to controlling the disease. "Malaria can strike anyone down, but history and experience show that it affects primarily the poorest, most peripheral and most marginal groups of a population," notes a recent WHO report.

In Djoumouna, entire families crowd under a single bed-net to sleep, often causing the net to tear and leaving family members vulnerable to bites. Villagers spend a large portion of family income on bed-nets and mosquito-repellent coils, and on treating malaria. The situation is worse in poorer countries like Malawi, where a bed-net costs US$30 or more, twice the monthly income

Looking for Natural Enemies

New Delhi, India— It may be a breakthrough: a biological pesticide against malaria being developed by a team of Indian scientists.

The pesticide contains bacterial spores that kill mosquitoes carrying the malaria-causing protozoa. The spores are mixed into a non-toxic oil-based solution that can be poured on water surfaces where mosquito larvae feed.

"In 24 to 48 hours the spores cause the larvae's stomachs to explode, killing them before they hatch into malaria-carrying mosquitoes," explains P.K. Ramdas, one of a team of doctors conducting malaria research at the Pesticides Development Centre (PDC) outside New Delhi. The PDC is funded by UNDP and the Government of India.

Dr. Ramdas says the PDC pesticide is unique for several reasons. "Mosquitoes have grown resistant to various chemicals now used to control malaria," he says. "But this cannot happen with our new biological pesticide because it uses no chemicals, only bacteria which are naturally lethal to the pests."

Also, unlike traditional chemicals used to control malaria, the PDC pesticide is environmentally friendly. The spores are mixed with oil in a special process called micro-emulsion, which makes the solution porous. So the pesticide floats on the surface like an open-lace shawl, allowing the water to breathe, unlike normal oil products.

"It's generally not safe to put chemicals or oil-based solutions in water, but our formulation is harmless. After the larvae eat the micro-globules, the pesticide is gone," says Dr. Ramdas.

The new pesticide will be marketed by the PDC with help from a US firm after scientists determine the specific number of bacterial spores needed to kill mosquito larvae. Hopefully this will be but one in a number of breakthroughs that will give science the upper hand in the battle against malaria.— **Denise Barricklow**

Ruth Massey/UNDP

Primary health care helps combat malaria through education and early treatment.

of an average family. As a result, few people own them.

"Malaria is not just a disease, it is a social problem related to the overall development of a society," says L.A. Salako, professor of pharmacology at the University of Ibadan in Nigeria. "The mosquitoes multiply in the bad environmental conditions one finds in poor countries," says Dr. Salako, referring to lack of sanitation, poor sewage systems and other conditions that encourage mosquito breeding. "The US and Europe eradicated malaria primarily through environmental improvements," he says, "with spraying and anti-malarial drugs playing a smaller role."

In other countries malaria has swept back into areas once freed of the disease, while related illnesses and deaths have escalated in severely affected regions. Countries such as Afghanistan, Brazil, Madagascar, Namibia, Sri Lanka and Sudan have been ravaged in recent years by epidemics. A drug-resistant strain has recently gained ground in Cambodia, raising fears that it will spread among some 360,000 Cambodian refugees returning from Thailand. There is also the threat that members of the United Nations' multinational peacekeeping force of 22,000 in Cambodia will carry this lethal strain with them when they return to their home countries.

As in other developing countries short on funds, the Congo's ability to control malaria is constrained by its poor health infrastructure and limited health-care budget. Spraying with DDT and other chemicals began in the 1950s in the country's urban areas, but later collapsed because of high costs and rapid urban growth. Today, DDT is frowned upon because of its harmful environmental impact.

Chloroquine use in the Congo reduced malaria deaths significantly in the 1960s and 1970s. The drug was available cheaply and people treated themselves at home. But these gains are rapidly being reversed because of parasite resistance to the drug. "Chloroquine was the great hope for the Congo," says Gaston Samba, who heads the country's national malaria programme, "so we are in big trouble."

Like other African countries, few people in the Congo can afford alternative anti-malarial drugs such as Fansidar and mefloquine, which are less suited to self-medication and often have side effects. Worse still, there is already growing parasite resistance to these drugs as well.

Without more help from modern medicine, poor countries the world over will continue to pay a heavy price because of the persistence of the disease, with the growing number of fever-related deaths only the most visible part of the problem. The malaria parasite, a minute protozoan, explodes red blood cells, causing severe anaemia, especially in children and pregnant women, as Africans know all too well. At a maternity clinic in Brazzaville, the supervising nurse, Flora Massamba, says: "Many pregnant women who come here have asymptomatic malaria and as a result suffer frequent miscarriages and low birth-weight deliveries. To this day there has been no health problem as terrible as malaria." ■

Indian journalist Siddharth Dube writes on public health issues.

Malaria Takes Viet Nam by Surprise

Hanoi, Viet Nam—Once thought vanquished, malaria returned to Viet Nam in full fury, reaching epidemic proportions last year. In 1991, more than 1.1 million Vietnamese were struck by the disease and 4,500 died. It continues to pose a deadly threat to millions, particularly those living in remote mountain regions.

During the 1980s, the former Soviet Union and other donors provided a total of about US$4.5 million worth of mosquito-killing agents and anti-malarial drugs each year. Efforts were so successful that, in 1985, less than one in every 100 persons tested in Viet Nam were found to carry the malaria parasite.

When aid from the former Soviet Union ended in 1989, the Vietnamese government, facing an array of domestic problems, seriously underestimated the likelihood that malaria would resurface, setting aside only $500,000 for anti-malaria efforts.

"There are good reasons why we're seeing a steady increase in malaria cases," says Que Pham, a medical officer with the World Health Organization (WHO) in Hanoi. "Since 1975, there have been mass migrations to new economic zones, where forests and ponds create perfect breeding conditions for mosquitoes. Soldiers infected in Cambodia have also returned to Viet Nam," he says. "Add to that economic depression and a low standard of living and you have a major problem on your hands."

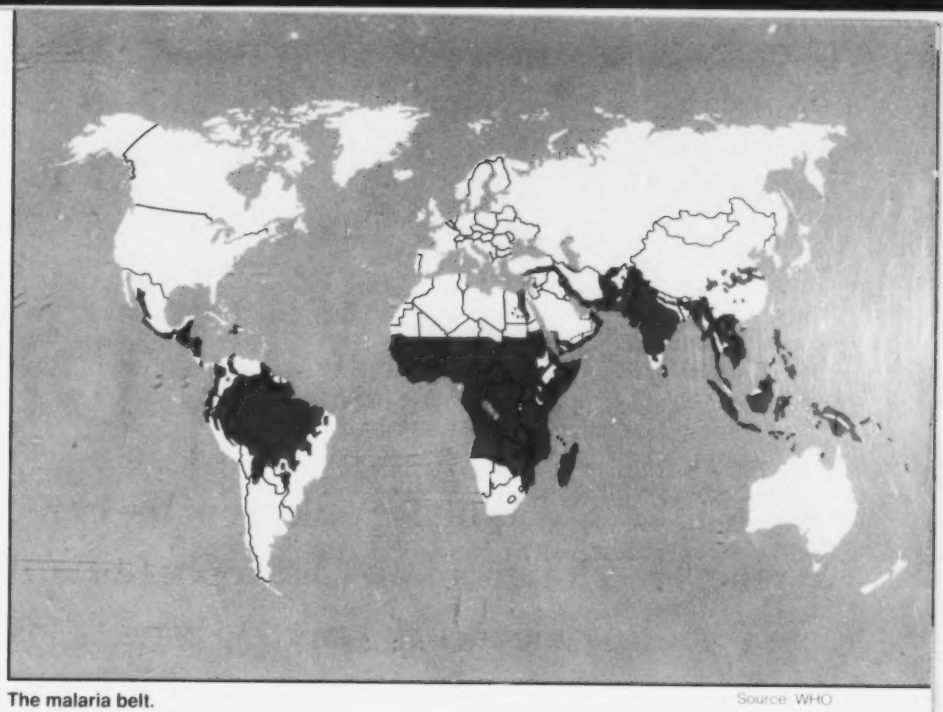
Surveys show that the highest mortality rates from malaria are in remote villages where health services are poor and malnutrition is endemic. Many of these villages are without clinics or health care personnel, and outside assistance is often limited due to their inaccessibility.

Que Phong, a mountainous district in central Viet Nam, is one place where the country's health delivery system has failed. When malaria broke out in epidemic proportions in June 1991, it took over a month for help to arrive, by which time hundreds had died. Even then, a new drug-resistant strain of malaria continued to exact a high toll on the population and confound hospital personnel.

"The shortage of money is a major problem since the most effective medicine must be bought with hard currency," says Dr. Pham. A single dose of mefloquine (an alternative to the more widely used chloroquine) costs $6 and, without government help, is beyond the reach of many malaria victims.

The government recently approved a $2.5 million programme for 1992, increasing its budget for anti-malaria efforts fivefold. The programme will target the most seriously affected areas and will provide prevention, treatment and education. But even with these additional resources, it is estimated that less than a third of the eight million people in malaria-infested regions will receive adequate services. WHO, among others, has been helping fight the disease with prevention programmes, including public education campaigns and the provision of medicated mosquito nets. It is also supporting cultivation of *Artemisia annua* – a plant that has been used to treat fevers in China for almost 2,000 years – from which artemisinin, a promising new anti-malarial drug, is being developed.

– Andrew Lam



The malaria belt. Source: WHO

"Malaria can strike anyone down, but history and experience show that it affects primarily the poorest, most peripheral and most marginal groups of a population."

The New Divide

With the collapse of the Iron Curtain, argues French author Jean-Christophe Rufin, the North is conjuring up new enemies and erecting barriers against the South.

For half a century, Western democracies have defined themselves by their opposition to Communism. The USSR and its satellites constituted a stable, centralized, monolithic adversary. Their sudden disappearance, symbolized by the fall of the Berlin Wall, plunged the West into a strange state of melancholy. To find the historical equivalent, we have to go back to 146 BC, when the Romans ordered the destruction of Carthage. Tradition has it that Scipio and his soldiers, when setting fire to the city, broke into tears. Rome suddenly had no more enemies.

A civilization cannot go on living with such a vacuum for very long. To dispel Rome's unbearable isolation, the philosopher Polybius proposed a new opponent. From now on, he told them, Rome represents civilization, peace, law and prosperity. Against it is arrayed the rest of the world, so that there is no longer a single, well-defined enemy but a nebula of rebellious, warlike, irrational, fanatical peoples. In short, on one side is the Empire, and on the other everything that is not the Empire, the "Barbarians." For the next six centuries, Rome would define itself in terms of these opponents.

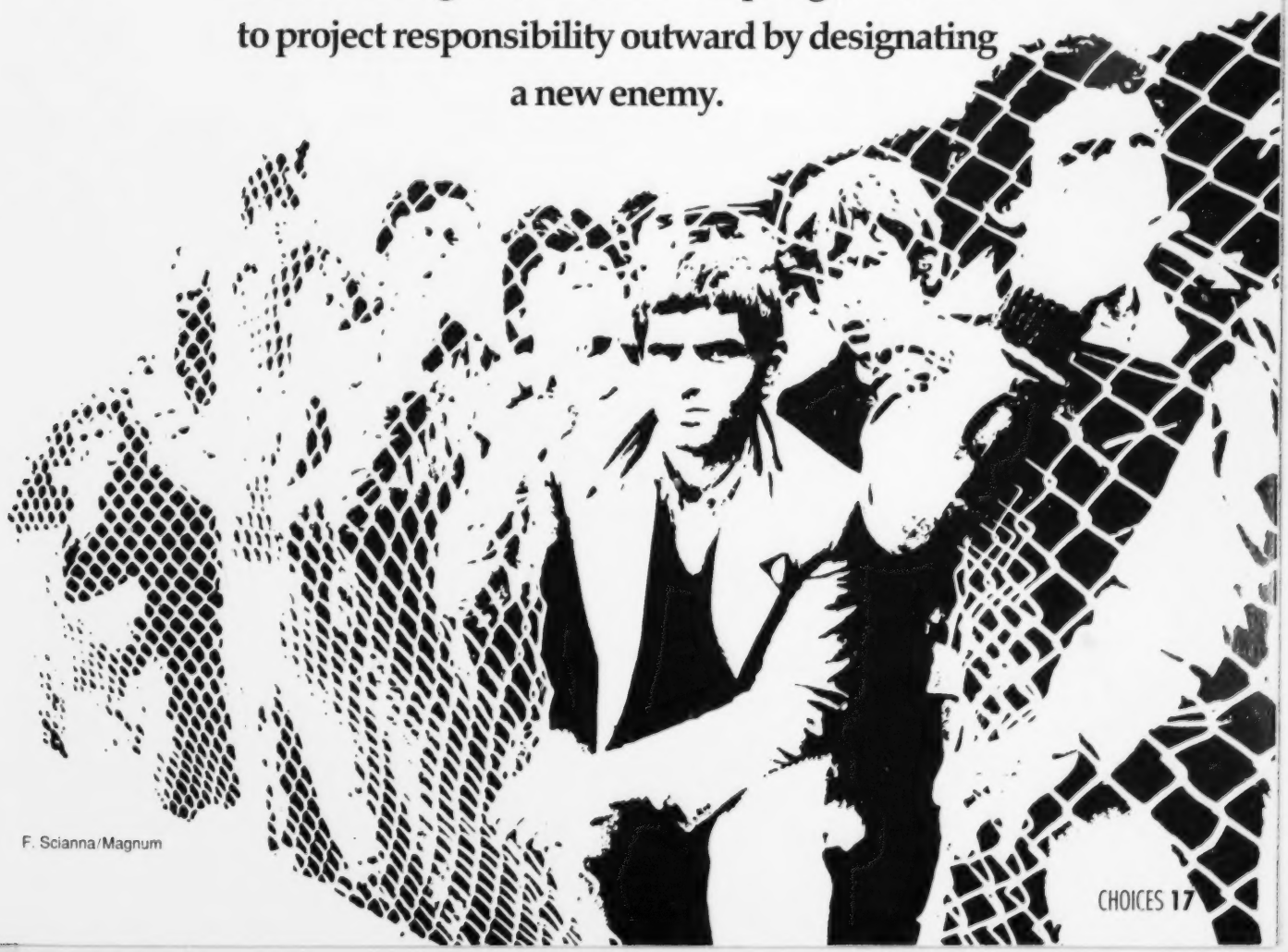
Just as promptly as the Romans, the Western democracies took off in quest of a new adversary. They found it in the South. From the very first death throes of Communism, it was possible to get an idea of where they would look thereafter: "Operation Just Cause" in Panama, the Russian intervention in Azerbaijan, the French intervention in Gabon and, of course, the Gulf war would show that danger should now be expected from that direction. The South is no longer a victim struck by poverty and suffering but an aggressor that threatens us with drugs, immigration, delinquency, terrorism and nuclear weapons. The Third World, to be sure, is not the tidy, homogeneous enemy that Communism was. But against the North, unified around its liberal democratic values, the countries of the South – poor, heterogeneous and violent – are designated the outside space, the new Barbarians.

A global balance sheet attests to this rupture. The North comprises only about one-fourth of the world's population. Yet it gets 83 per cent of its income. The North consumes 70 per cent of the planet's energy, 75 per cent of the metals, 85 per cent of the wood and 60 per cent of the food. The so-called "development" process, far from bringing all countries closer in terms of living standards, is, in fact, aggravating their inequalities. As pointed out in the *1992 Human Development Report*, published by UNDP, the countries where the richest 20 per cent live have experienced an economic growth rate 2.7 times that of the poorest 20 per cent. The marginalization of the Southern countries is also growing in terms of their share in international trade. Even more serious is the fact that World Bank loans are becoming rarer and more expensive,

while lending by commercial banks and direct foreign investment in the poorest nations has collapsed.

As for higher education – reflected in numbers of scientific and technical personnel, research and development expenditures – we again find a constant worsening of the handicaps of the South. From a demographic standpoint too, there is a growing divergence. In the North, growth rates everywhere are low or negative; in the South, levels continue to be high (close to two per cent in general and higher than three per cent in sub-Saharan Africa). Population movements, far from compensating for the North-South imbalance, are helping to worsen it: the South itself is absorbing its own surplus populations, particularly in the megalopolises. Uprooted masses, drawn by the mirage of cities that can provide them with neither work nor decent housing, are creating an ever-sharpening contrast with the middle or owner classes in those countries.

The more the internal problems of the developed democracies grow, the more tempting it becomes to project responsibility outward by designating a new enemy.



F. Scianna/Magnum

This great divide is now being used to feed a defensive ideology of North against South. It supports the image of a North which, while not politically unified, is homogeneous in terms of demographics, economic results, commercial and financial integration. Opposing it is the South, not unified either, but having key negative features in common: it has not been successful in its demographic transition, its industrial revolution or its insertion in the world economy.

The more the internal problems of the developed democracies grow (unemployment, insecurity, a precarious social fabric), the more tempting it becomes to project responsibility outward by designating a new enemy.

Never have conditions been more favourable to taking on the challenge of development: the end of the East-West conflict, the growing awareness of the planet's ecological situation, the opening up of world markets and the democratic transitions achieved in many states are all trump cards.

This ideology of a split is rarely expressed in so many words. Yet it is easy to show that it is already influencing the foreign policies of the major powers – what has come to be known as the New World Order.

It expresses itself first and foremost in concepts about closing off and self-protection by the North that today dominate its attitude toward the Third World. This is manifested chiefly in terms of the movement of people. Restrictions on immigration are increasingly strict. The South is perceived as the land of excess population, overflow and invasion. The developed countries of North America share this fear with Japan and Europe, including Eastern Europe: the Slavic states of the CIS are becoming concerned about migration from their own South (Central Asia and the Sino-Mongolian regions). Political and psychological lines are being created around the North, such as the Romans traced between themselves and "the others." Close attention is being paid to any destabilization in the buffer states bordering the North – Mexico, the Caribbean, the Maghreb, Turkey, Iran or China – which could signal dramatic consequences in terms of migration.

Beyond this line of buffer states, in the depths of the Southern continents, this is a period of disengagement. The time is long gone when Soviets and Americans were writing History in the far-off jungles of Angola and Viet Nam. Transitional powers have been hastily installed in the lands of former peripheral East-West conflicts, with a view to permitting the rapid disengagement of the international community.

In new conflicts that have recently surfaced – most often coinciding with the collapse of weak and failing states (Peru, Liberia, Somalia) – mobilization of the great powers is extremely limited. Real *Terrae Incognitae*, blank spots seen on maps 100 years ago, are being created in parts of the globe, such as the Horn of Africa, the Ando-Amazonian region and uncontrolled pockets in Central and Himalayan Asia.

The same logic of abandonment can be seen in the economic arena. Regarding the poorest countries, a purely humanitarian attitude seems to have replaced true efforts at development. Spectacular but ephemeral rescue operations provide a short-

term palliative to the most unbearable ravages of famine (Southern Africa), war (the Horn of Africa) or natural disasters (Bangladesh), without providing the slightest hint of longer-term solutions.

As far as the newly industrializing countries are concerned, the liberalization of their economies is advocated above all as a way of opening new markets to the industries of the developed nations. But this represents more a trader's logic than an attempt at in-depth development. At the same time, the growing protectionism of the strong economies is increasingly penalizing the export capacities of the South.

No sooner were the Romans committed to the path of Empire-Barbarian confrontation than they experienced all the contradictions of their stance. No one embodied these more effectively than Emperor Marcus Aurelius, that subtle philosopher who, infatuated with the values of Latin civilization, spent his life waging war in a hopeless effort to defend them. A Marcus Aurelius complex is today taking hold of the developed nations.

Acknowledging this, we in the North must face the fact that we are not naturally heading toward universal democracy and development. Quite the opposite may be true. Yet never have conditions been more favourable to taking on the challenge of development: the end of the East-West conflict and its destructive effects, the growing awareness of the planet's ecological situation, the opening up of world markets and the democratic transitions achieved in many states are all trump cards.

If the end of the East-West conflict leads to a new military build-up directed against the South, it will have solved nothing. But it could, on the other hand, permit regular and massive disarmament, in which case the peace dividend would be available to finance the growth of the poorest countries.

Ecological awareness could be the motive for a new confrontation between North and South, with each side accusing the other of destroying the planet's resources. Or it could, on the other hand, lead to the establishment of ground rules for sustainable development, enabling Third World countries to develop in a way that respects the environment.

The freeing of markets could be savage and destructive to weak economies. Or it could, instead, encourage them to export their products and stimulate the transfer of technology that would free up the resources of the South.

Democracy may turn out to have been just a slogan, bandied about to justify a now-ending Cold War, only to be jettisoned as soon as the stability of still-important regions is secured. On the other hand, it could be a lasting requirement that demands that the new "blank spots" on the map are not abandoned to chaos. It is a good thing to mobilize for Yugoslavia (which is in the North). But this should not lead us to forget the many other Yugoslavias of the world where anarchy and turmoil rage. Development can be envisioned only if peace makes it possible.

Here, then, are the alternatives before us. On one side are those who want to impose a kind of worldwide apartheid, separating a prosperous North from a proliferating and miserable South. On the other are those who persist in wanting to preserve the unity of the planet and of the people who dwell on it. ■

John Foley / Studio Opale

Jean-Christophe Rufin has worked on development cooperation in Latin America, Africa and Asia, and is co-chairman of the French-based emergency relief organization, Médecins sans frontières. His most recent book is L'empire et les nouveaux barbares: rupture Nord-Sud, *published by Hachette, Collection Pluriel.*

Debt Swaps for AIDS

By Craig Sarsony

Through debt conversions, countries hard-hit by HIV/AIDS could expand national health programmes aimed at curtailing the epidemic.

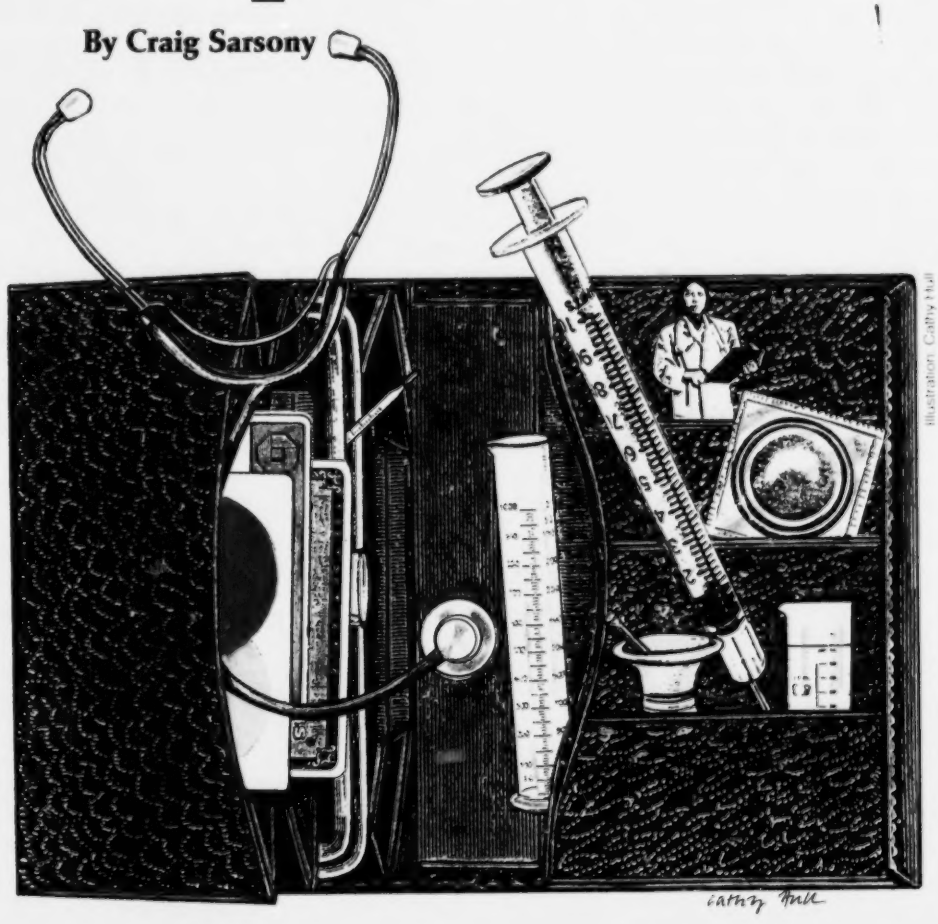


Illustration: Cathy Hall

AIDS is not affecting all nations equally. Worldwide, an estimated two-thirds of reported HIV infections are in countries of the developing world. By 2010, according to the World Health Organization (WHO), this share could go as high as 90 per cent. Hit hardest by AIDS, developing countries can least afford to confront it.

While the majority of HIV infections among adults is currently in sub-Saharan Africa, experts warn that the incidence of HIV/AIDS in South and Southeast Asia is growing at a pace reminiscent of sub-Saharan Africa in the early 1980s. Similarly, in Latin America and the Caribbean, HIV/AIDS is expected to spread dramatically over the next two decades.

As the human toll of HIV/AIDS escalates, so does the devastation wrought on local economies. A shrinking work force means shrinking productivity, markets and investment. Add to this the burgeoning health costs associated with the disease and the result is a major threat to the development prospects of many countries. Faced with this spectre, governments are looking for creative ways to

step up prevention and control programmes and meet skyrocketing medical costs.

One strategy that merits close attention is a financing mechanism involving debt swaps that has already proven successful in areas such as the environment, child survival, education and agriculture. The same approach could be employed to help developing countries raise much needed cash in the fight against AIDS.

Under a debt conversion, a development organization first purchases a debtor nation's unpaid loan from a commercial bank at a discount. The debtor government then repays the buyer (the development institution) at an amount greater than the purchase price, with the agreement that all of the funds be spent on development. The funds put up by the developing country are in local currency, thereby eliminating currency conversion costs. The developing country benefits in two ways: by ridding itself of an unpaid loan while at the same time helping finance a necessary but otherwise unaffordable development programme.

This creative approach to development financing has grown in popularity in recent years, as commercial banks have become more willing to sell overdue developing-country loans for less than their face value. A 1987 agreement between Conservation International and the Government of Bolivia to cooperate in a US$650,000 debt-for-nature swap, and another valued at $1 million between the World Wildlife Federation and Ecuador, are two of the earliest examples of debt conversions that have set the stage for others to follow. Debts of $500 million to $750 million have since been converted through this mechanism to provide funding for development and conservation programmes in Africa, Latin America and Asia. Debt conversions that have been completed in Ecuador, Mexico, Nigeria and the Philippines have boosted project funding by 25 per cent to 100 per cent in some cases.

One current example is an agreement being negotiated between the Government of Nigeria and the River Blindness Foundation (RBF). The debt swap will provide about $500,000 needed for the mass distribution of Ivermectin, a drug used to combat onchocerciasis, or river blindness, which is provided free by its US manufacturer, Merck & Co. Under the transaction, RBF will purchase a $1 million Nigerian debt from a commercial bank at about 40 per cent of its face value, or $400,000. The Central Bank of Nigeria will then pay the Foundation 50 per cent of the original debt in Nigerian naira, which will help fund the national Ivermectin drive. By using the debt conversion mechanism, the number of Nigerians receiving this important drug will increase significantly. The government will clear its books of an outstanding obligation and the commercial bank will recoup part of a loan that was not being serviced.

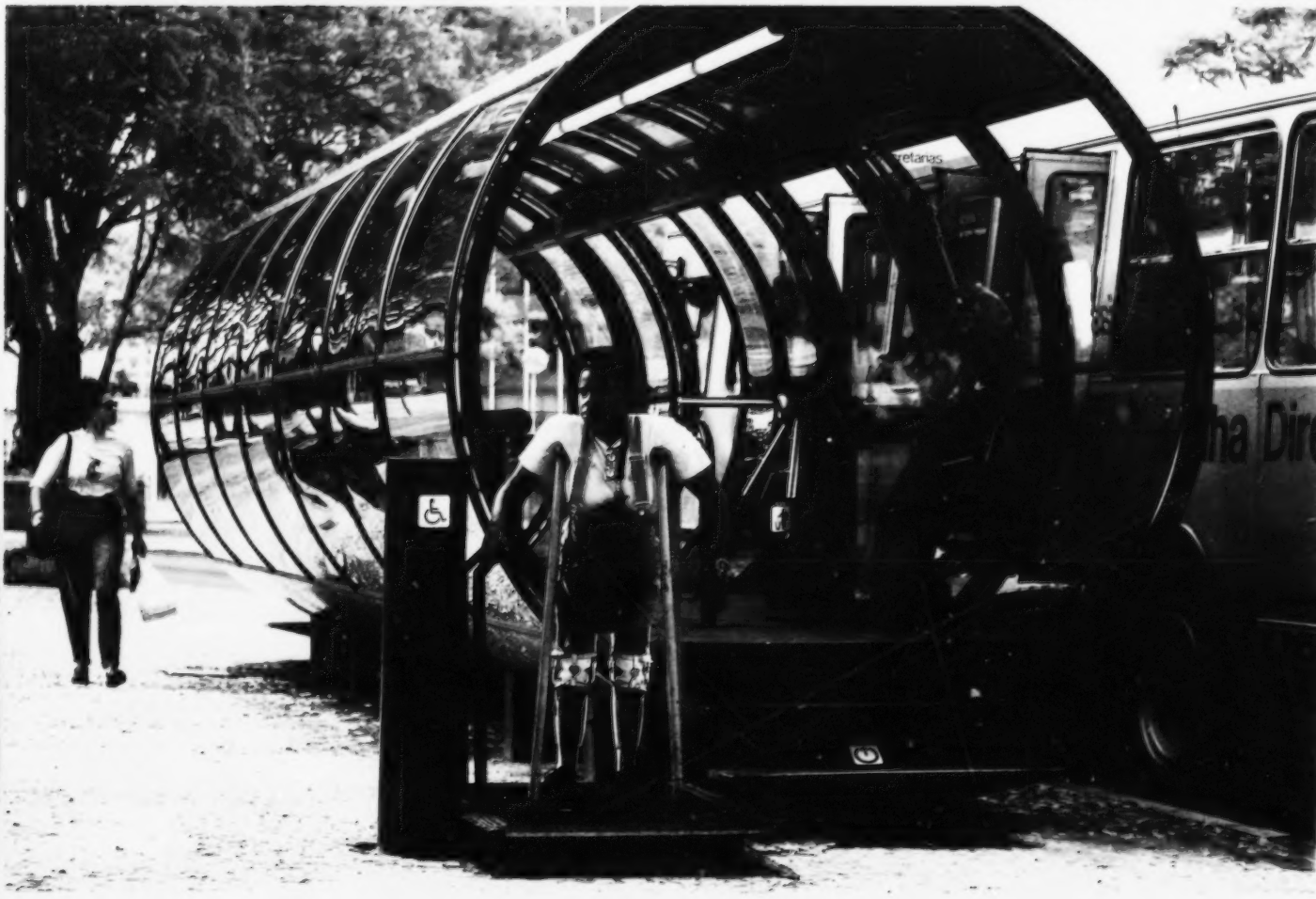
Debt swaps to raise funds for the prevention and control of HIV/AIDS would work in much the same way as the RBF initiative. Through debt conversions, countries hard-hit by HIV/AIDS could afford to expand national health programmes aimed at curtailing the epidemic. This could lead to increased numbers of clean blood units, improved treatment facilities and more widespread and effective prevention campaigns.

Debt swaps have grown in popularity in recent years as commercial banks have become more willing to sell overdue developing-country loans for less than their face value.

There are excellent debt conversion opportunities in many countries at risk of HIV/AIDS, including Ecuador, Mexico, Nigeria, the Philippines, Tanzania and Zambia. Development organizations operating in these and other countries should explore expanding their resources for HIV/AIDS programming through this approach. Governments in countries which do not yet have debt conversion programmes may want to consider the value of this strategy in mobilizing funds for HIV/AIDS campaigns as well as other priority areas. ■

Craig Sarsony, MBA, MPH, is senior manager of transactions at the Debt-for-Development Coalition, Inc. in Washington, DC, a non-profit organization specializing in debt conversions. Mr. Sarsony looks for new strategies to finance public health programmes.

URBAN ENVIRONMENT



A model system of mass transit has helped reduce Curitiba's traffic, pollution and fuel consumption.

Curitiba's Creative Solutions: Learning from Lerner

By Michael Kepp

Curitiba, Brazil—With small, bright eyes and an impish smile, Mayor Jaime Lerner is a man of leprechaun looks and charm. When he launches into his favourite topic, the plight of cities, he enthrals you with his heady optimism. It's the clearness of his message – that urban ills can be remedied with cheap and simple solutions – that is most captivating. And he adds some inspirational magic by saying that transforming cities requires nothing more than the collective will to do so.

Mr. Lerner may be a bit eccentric. He abhors suits, wearing polo shirts instead, and works in a log cabin at the edge of a pine forest. But no one accuses him of flights of fancy. That's because he's got the credentials – he's an architect and city planner – and, even more important, the track record to make his "transformational" message ring true.

Now in his third non-consecutive term as the mayor of Curitiba (pronounced Koo ree CHEE bah), Brazil's eighth largest city, Mr. Lerner, 54, has turned the metropolis into a veritable laboratory for curing urban ills. His remedies have been so restorative that Curitiba has become a Mecca for mayors of other cities, both North and South.

"Curitiba's realities may be different from ours," says Mamadou Diop, mayor of Dakar, Senegal, "but Jaime Lerner has convinced me that cities can initiate their own changes, without waiting for federal help."

With funding from the United Nations Development Programme (UNDP), Curitiba was chosen to host the World Urban Forum last May. The Forum, which was an official event of the UN Conference on Environment and Development, brought together the mayors of 45 cities to share their successes and concerns and to learn from the experience of their host city.

Curitiba's transformation (one of Mr. Lerner's favourite words) was accomplished in a country plagued by a host of social and economic woes.

Brazil's unbridled development during the "Miracle Years" of the late 1960s to the late 1970s, created urban eyesores unequalled in many other countries. Unchecked industrial growth and mechanized agriculture turned cities like Rio de Janeiro and São Paulo into catch basins for the rural poor: millions jostling for space within a steel, concrete and asphalt maze, with sprawling shantytowns, armies of street kids, snarled traffic, uncollected trash and pollution shrouding it all.

What Mr. Lerner has done with Curitiba, the capital of the southern farm state of Paraná, has turned that familiar Third World urban nightmare on its head. The fact that Curitiba, with a population of 1.6 million, is relatively small and located in an affluent part of the country, helped. And some point out that his successes would be hard to replicate in a city like greater São Paulo which, with 17 million people, is one of the world's largest and a good deal more complex. Still, Mr. Lerner has won credit in making Curitiba an anomaly in a country plagued by urban problems.

Behind Mr. Lerner's cheap and simple solutions was one basic tenet: If city dwellers used their cars less and separated their trash, half the city's problems would be solved.

The centrepiece of his reform is the city transport system. Mass transit, now serving 1.3 million passengers in Curitiba daily, was meant to alleviate the traffic jams created by the city's 500,000 cars, more per capita than any other major Brazilian city.

To unclog city thoroughfares, Mr. Lerner put in a 480-kilometre bus network, established at one-hundredth the cost of digging a subway. Passengers ride buses to Curitiba's most distant points for 25 US cents and transfer as many times as they want.

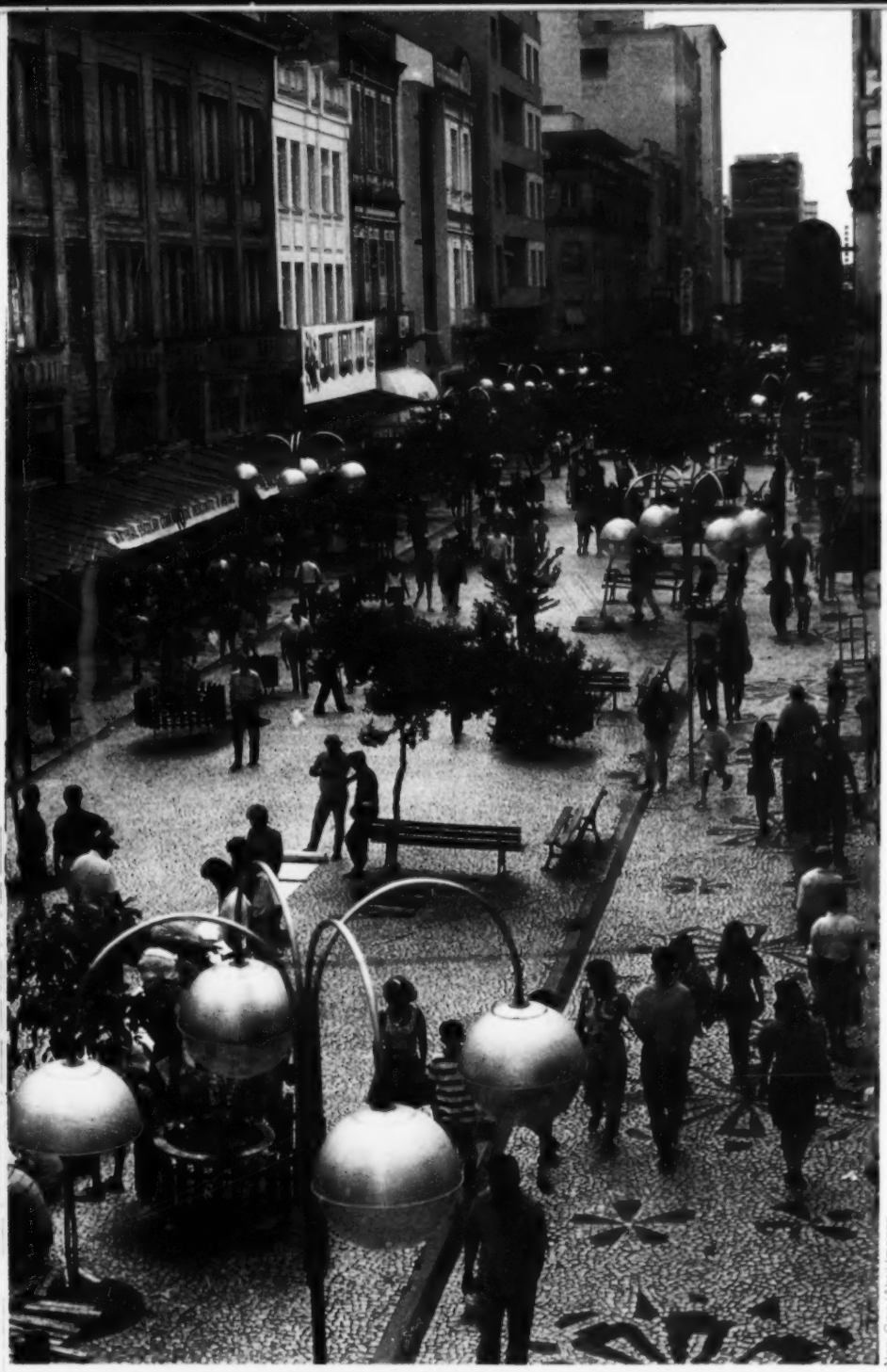
Essential to this "surface subway" network are express bus lanes and over a dozen "speedy" lines, where passengers pre-pay their fare while waiting in transparent tubular stations. When the bus arrives, a station platform slides out to meet a wide door in the mid-section of the bus, allowing for rapid boarding. These innovations cut travel time by 25 per cent.

With this reduced traffic, the rate of

Photos by Carlos Humberto Contact Press Images

Mayor Jaime Lerner.

Jaime Lerner's remedies have been so restorative that Curitiba has become a Mecca for mayors of other cities, both North and South.



Nair Gois/Abril Images

Rua das Flores, closed to traffic, is Brazil's first outdoor shopping mall.

accidents per vehicle is the lowest in Brazil. Pollution has markedly decreased, because the city's overall fuel consumption is now 25 per cent less than in similar-sized Brazilian cities. It's also why the International Institute for Energy Conservation, a Washington-based environmental think tank, honoured Curitiba for its express bus system.

In June, Curitiba set up a six-week demonstration of four "speedy line" bus tubes in lower Manhattan which won praise from the New York Transit Authority.

To further unclog Curitiba's transit, Mr. Lerner is building a bicycle path which will eventually stretch 144 kilometres between downtown and a series of urban parks, the number of which is also rising. In 1971, when Mr. Lerner, then 33, first became mayor, Curitiba had only 1.5 square metres of green space per inhabitant. This has increased to 50 square metres, one of the highest ratios in the world.

The second main element of Mr. Lerner's reforms is an ambitious garbage collection and recycling programme. Using the slogan "trash that isn't trash," Mr. Lerner went on TV to convince residents to separate their rubbish into organic and inorganic waste. With a mix of public relations savvy and leprechaun spirit, he had garbage trucks painted green. And he kicked off the campaign by donning overalls and doing a day of collecting recyclable trash.

"Shantytown kids ran after the garbage truck, tauntingly calling me 'trash collector,'" says Mr. Lerner. "But that was my idea. If it's not beneath the mayor to collect trash, it shouldn't be beneath them to separate it."

"Brazilians are neither saints nor born environmentalists. If you want them to use their cars less, you must give them an attractive alternative."

And Mr. Lerner sent "the Leaf Family," four actors dressed in foliage, to promote the campaign in schools. Students were taught ecology and awarded pictures of comic book heroes for turning in non-degradable trash like batteries and toothpaste tubes.

Now some 70 per cent of the population recycles. One reason: recyclable trash is picked up on assigned days at

More than 140 kilometres of bike paths are being built, offering a tempting alternative to car travel.

Photos by Carlos Humberto, Contact Press Images

Seventy per cent of Curitiba's trash is now being recycled.

homes rather than at community collection spots, making less work for residents.

There is "human recycling" as well. The city deliberately hires homeless men and recovering alcoholics to operate trash-sorting conveyors at its recycling plant.

Mr. Lerner's team of publicists and city planners also devised "the green exchange" to collect trash in roadless shantytowns inaccessible to garbage trucks. The city gives produce or transit tickets to the poor who haul their trash to pick-up points on the edge of the shantytown. Fifty neighbourhoods now take part.

"Trash that isn't trash," "green exchange" and the recycling plant are part of a triangular programme. The profits from selling garbage, recycled at the city plant, go to buy more produce to give to shantytown dwellers who haul their trash to "green exchange" pick-up points. In 1990, that triangular programme, a mix of simplicity and ingenuity, won the prestigious UN Environment Programme's urban administration award.

In keeping with his transformation motif, Mr. Lerner has remodelled old city buses, and is using them as classrooms for vocational training in poor peripheral neighbourhoods.

He has also opened 24-hour health clinics for the poor. This year he promised to spend 35 per cent of his budget on public works like schools and day-care centres to improve the lives of the city's children. Last year, the city persuaded local industries to adopt 10 to 15 street kids each and provide them with a meal and a minimum wage for doing odd jobs, like messenger services. Mr. Lerner claims 20 per cent of the city's street kids are now so employed.

Mr. Lerner says it requires more than charm to get both people and industries to cooperate with such reforms. "Brazilians are neither saints nor born environmentalists. If you want them to use their cars less, you must give them an attractive alternative like speedy bus lines. If you want them to help with trash collection, it helps to first offer them produce," he says. "Over time, when a city provides these services and also builds schools, health centres and employs street kids, it shows residents that it respects them and has their interests at heart, and people begin to assume a sense of co-responsibility for those changes."

Mr. Lerner has also turned the city's main street into the country's first pedestrian mall. Shopkeepers were irate – until their businesses started booming. Then they asked Mr. Lerner to close additional streets. Today, the *calcadão*, or giant sidewalk, stretches 49 blocks. Curitiba also boasts the country's first "24-hour" street – a long, glass-enclosed arcade with more than 80 stores.

Some Curitiba residents say that Mr. Lerner, a marketing expert, uses these unneeded touches to win over needed middle class support. They argue that

taxpayers' money would be better spent on upgrading the infrastructure of shantytowns, given that around 50 per cent of Curitiba residents don't have sewers.

"Mr. Lerner claims that he is not like other Brazilian politicians, that he isn't going to leave a legacy of monumental works with soccer stadiums and ornate public buildings," says João Andrade, a Curitiba electrical engineer. "But by investing taxpayers' money in shopping malls for the middle class, instead of funding less flashy but much needed reforms like sewers for the poor, he is moving in that direction."

The mayor rebuffs that argument by saying the state and not the city government is responsible for sewer construction. He adds that, because the state has dropped the ball on sewer building, he has tried securing foreign loans to do so, but to no avail.

He also says that most of his reforms – everything from the fast and inexpensive transit system to the green exchange – directly benefit poor and working-class residents.

Mr. Lerner won a great deal of praise from the mayors and city representatives who attended the World Urban Forum. Jean Doré, the mayor of Montreal, says that Mr. Lerner has succeeded because he has involved the people in both drawing up and implementing his cheap and simple reforms.

"Mr. Lerner not only asks the public and local industry for feedback on projected reform measures," says Mr. Doré, "but also involves them in existing ones, like his garbage collection and street kids projects. In doing so, he makes them part of his workforce."

Mr. Doré adds that Montreal is looking at how to adopt a version of Curitiba's express bus lines as well as making them accessible to people who use wheelchairs.

Participants at the World Urban Forum signed the nine-point "Curitiba Commitment." With or without outside assistance, they pledged to improve basic services, increase energy efficiency, reduce pollution, combat social and gender inequalities and give priority to the needs of children. They also committed themselves to integrating environmental planning and economic development and to increasing cooperation among local municipal authorities.

Mr. Lerner says that the Curitiba Commitment "shows that city officials are beginning to have a single voice in environmental issues, issues which begin in cities."

He adds that "nations, unfortunately are not showing the same foresight and, as such, city officials have an uphill fight to keep global accords like the Curitiba Commitment from being squashed by national interests."

To avoid this pitfall, and to make the Curitiba Commitment a true action plan, participants gave themselves one-year deadlines to draw up blueprints on how to implement their nine-point pledge. The plan suggests that mayors and city planners consult their communities when drawing up these blueprints, and that they elaborate funding schemes for financing them.

One source of new ideas may be the $4 million LIFE programme, supported by UNDP and bilateral donors, which was launched at the Curitiba meeting. This Local Initiative Facility for Urban Environment will finance demonstration projects carried out by NGOs, community groups and municipal authorities to improve the urban environment.

The toast of the World Urban Forum, Mr. Lerner, has the highest approval rating (96 per cent) of any big city Brazilian mayor. The governing party in São Paulo state has asked him to be its candidate for mayor of the capital city of São Paulo. And President Fernando Collor de Mello reportedly has asked him to head his environmental secretariat. As of August, Mr. Lerner had declined all such offers, saying he may resume urban planning after his term ends next January.

The mayor will not, however, be able to step down saying he has solved all of Curitiba's most pressing problems, sewer systems aside. As in many other developing countries, the city's success has lured many of the rural poor and fuelled the growth of its shantytown population. So has mechanized farming in Parana state, forcing the displaced rural poor to invade vacant lots on the city's periphery. Slum dwellers now represent 10 per cent of the population.

Some of Mr. Lerner's critics say that it is easier to manage Curitiba than most Brazilian cities because it is the capital of one of Brazil's wealthiest states. But he contends that the cheap and simple formulas he has put into practice can work anywhere.

"All cities have similar problems, independent of their size," says Mr. Lerner. "But they also have the capacity to transform those problems into solutions." ■

Michael Kepp writes about environment and business from Rio de Janeiro.

CULTURE

REDISCOVERING THE KASBAHS

BY LOUIS WERNER

Ouarzazate, Morocco— Historians of vernacular architecture often speak of the "kasbah belt," that great continuity of building style and materials stretching east across North Africa all the way into Afghanistan. But what do kasbahs really represent, and why are these centuries-old mud dwellings still important in the age of the skyscraper?

North African kasbahs are in fact two different things. In imperial cities like Algiers, Fez and Rabat, the kasbah was originally the walled outer quarters of the palace. As the cities grew, these royal precincts were haphazardly adapted to a mixture of private residences, labyrinthian public passageways and small commercial establishments, including market stalls teeming with life.

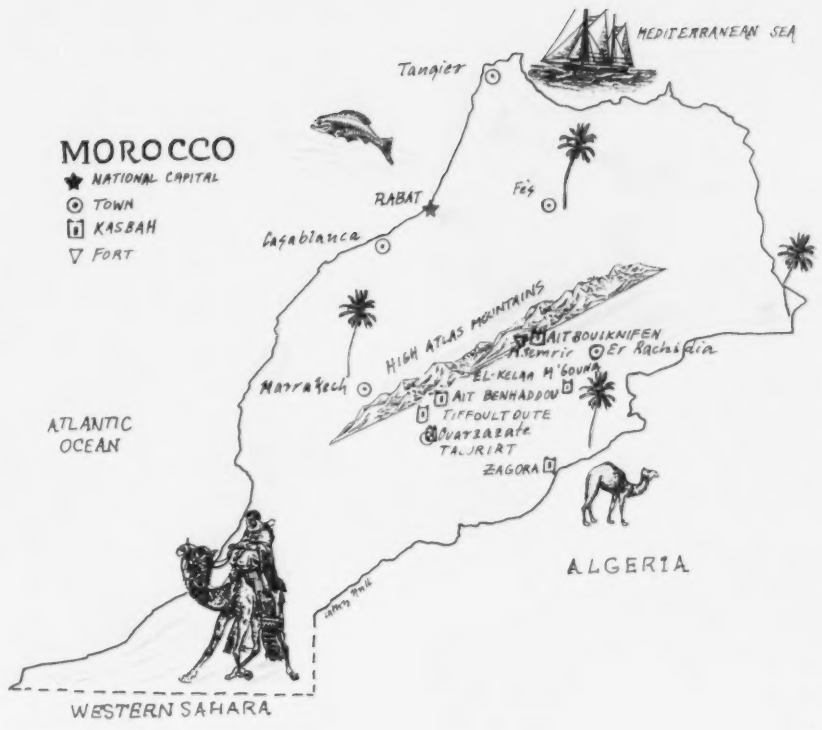
But in rural areas kasbahs live and breathe to the rhythm of the agricultural seasons. Here, a single dwelling kasbah is often the nucleus around which a village has grown. The style of these kasbahs is fairly uniform, consisting of multi-storied cubic spaces surrounded by massive walls and towers, richly textured with surface ornamentation. Materials invariably are a combination of dried mud, packed earth and rock.

Nowhere is there a greater profusion of kasbahs than in southern Morocco, extending from the deep valleys of the High Atlas Mountains down into the meandering wadis of the desert. This is the fabled land of Berber warlords and trans-Saharan tradesmen, where groves of date palms are watered each spring by the melting snow of Jebel Toubkal, one of Africa's highest peaks, and its sister summits.

David Melody

ADOLPHE BASLER

Ait Benhaddou, a village with four showcase kasbahs, has been designated a World Heritage Site by UNESCO.



Because southern Morocco's kasbahs were usually occupied by the ruling clan's extended family, they anchored the village economically as well as architecturally. To a lesser extent, this still holds true today. "As the kasbah goes," the saying has it, "so goes the village." Moreover, the kasbahs remain among the finest examples of Morocco's rich cultural heritage.

Fifteen years ago, sensitive to the fact that these treasures were endangered, Morocco's Ministry of Cultural Affairs made an inventory of rural kasbahs and documented the condition of nearly 300 separate structures. Its findings were alarming. Nearly all were facing steady decay, and many – while still privately owned – were being abandoned. At the same time, rapid migration to the cities meant that the traditional skills needed to maintain and repair these unique rural dwellings were being lost.

In response, the government established a Centre for Conservation of Architectural Patrimony in 1987 in the centrally located oasis town of Ouarzazate. Its purpose is twofold: to restore and rehabilitate kasbahs of prime architectural value and to ensure that these structures – along with the traditional skills to maintain them – are kept alive by adapting the kasbahs to new public uses.

The kasbah inventory was undertaken with funding from the United Nations Development Programme (UNDP), which has supported the centre since its inception. "This is a unique experiment in Morocco," says Christoph Jaeger, a former UNDP resident representative in that country. "Just as the date palm is the key to promoting desert agriculture, the kasbah will be the key to preserving desert culture. And we believe the Centre will prove that culture can be the motor of socio-economic development."

The Centre takes a multi-disciplinary approach to preserving an indigenous architectural style that simultaneously must uphold local tradition, attract foreign tourists and serve practical needs.

"Our work is more about human problems than technical ones," says Mokhtar el Farouki, the Centre's director. An anthropologist by training, Mr. el Farouki knows that he and his architects must first get community support – including that of kasbah owners – before any physical work can begin. "Community cooperation is key," he says, "but this you never learn in architecture school."

Nowhere is there a greater profusion of kasbahs than in southern Morocco, extending from the deep valleys of the High Atlas Mountains down into the meandering wadis of the desert.

The Centre began with a demonstration project – the repair and partial redesign of the Taourirt kasbah in Ouarzazate, which now serves both as its administrative headquarters and as the region's major tourist attraction.

Kamal Said is the contractor in charge of construction, and is responsible for recruiting and training local craftsmen to work in traditional techniques. Born in the kasbah Ait Bouiknifen near M'Semrir, built by his ancestors and expanded by his father and grandfather, Mr. Said is aware of the special consideration kasbahs demand of their owners. The walls of his beloved family home collapsed in 1966

Local workers are restoring the Taourirt kasbah in Ouarzazate.

due to the unrepaired damage of heavy rains – a fate he is trying to prevent elsewhere. The valleys and oases around Ouarzazate are dotted with kasbahs long ago abandoned to the ravages of weather and time. But when Mr. el Farouki looks at these relics, it is not the past that comes to mind as much as the lost promise of the present. These are dwellings that might still be inhabited or put to productive use.

Like many other kasbahs, Taourirt's foundation is made of rock. Its upper story and fine detail work are of sun-dried adobe brick, and its walls of *pisé*, a French word for the rectangular casts of rammed earth that are a kasbah's main building element. Under Mr. Said's supervision, major repair work on Taourirt's outer walls and rooms is under way. A crew of masons position adobe bricks into the wall's decorative upper course, using the familiar double key motif that some folklorists believe originated in the ancient Berber alphabet. Nearby, two men weave reeds dyed red and black into hexagonal ceiling panels of the Tataoui pattern, named for the Tata oasis. The 15 men Mr. Said is training will eventually go on to private jobs on other kasbahs, taking with them their newly acquired skills.

"Our work is more about human problems than technical ones. Community participation is key, but this you never learn in architecture school."

More recently the Centre has turned its attention to Ait Benhaddou, a village recognized by UNESCO as a World Heritage Site for its unique state of preservation and its four showcase kasbahs. Foreign tourists long ago discovered Ait Benhaddou's beauty and magic, as did several Hollywood movie directors. Scenes from such popular films as "Lawrence of Arabia" and "Jesus of Nazareth" were shot there.

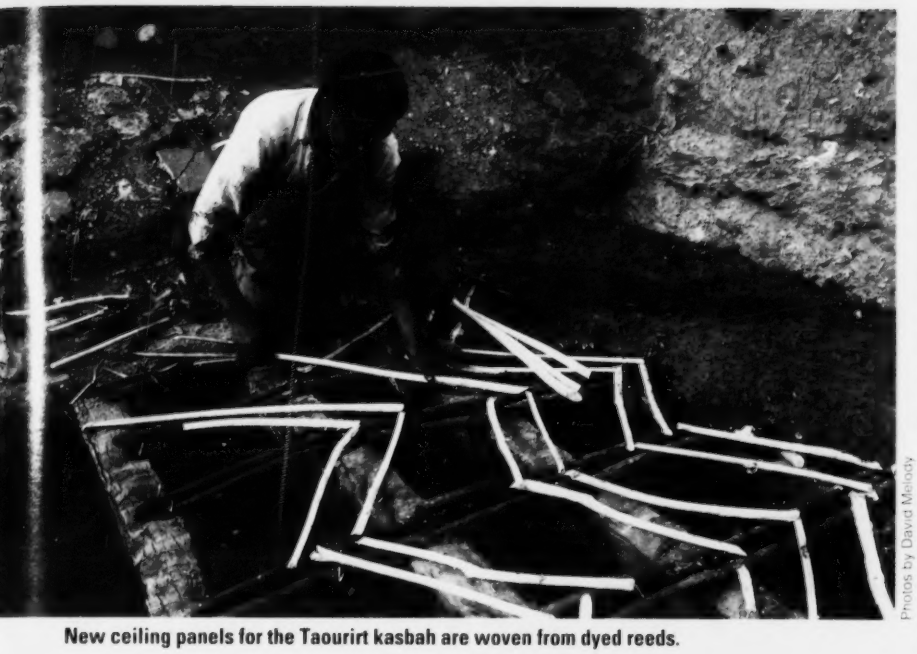
In spite of its exotic charm, Ait Benhaddou lacks electricity, piped water, schools and health facilities. Many local villagers have left it for a new location beside the road on the river's opposite bank. In contrast to the organic shapes and glowing earth tones of the structures in Ait Benhaddou, the new village is comprised of uniform concrete slabs and blocks.

Today, only six families are left in Ait Benhaddou, including the main kasbah's owner, Jamal al-Din Muhammad. The challenge here, says Mr. el Farouki, was more than just a physical one. It was to determine what community members felt was needed in order to remain in their original village, and whether mud architecture and an irregular village plan could be made compatible with modern amenities.

What he found in talking with the residents – those remaining in the old hillside village and those who had moved across river – surprised him. They said that they were eager to have the old village mosque repaired and reopened. Electricity and other amenities, they said, could wait.

But there was another reason to work on the mosque. Bringing the villagers together – among them kasbah owner Mr. Muhammad – on a restoration project dedicated wholly to the public good, might also convince them to work jointly on a project where private ownership would be a sticky issue.

"Jamal al-Din Muhammad's kasbah will be the Centre's first real test case," says Mr. el Farouki. "We'd like him to turn it into a cultural centre or maybe a workshop for a rug making cooperative so that the entire village could benefit. But he is naturally reluctant to give away something for nothing."



Photos by David Melody

New ceiling panels for the Taourirt kasbah are woven from dyed reeds.

Handmade adobe bricks are a main building material in the restoration of kasbahs.

In negotiating with Mr. Muhammad, the Centre offered help in repairing some of his other village properties in return for his agreement to put his kasbah to public use. He, in turn, suggested making the kasbah into a small hotel, which he argued would bring tourists and hard currency into the community. As of now, the matter is undecided. "So we continue to talk," says Mr. el Farouki.

Meanwhile, the old mosque is taking new shape. A fresh Tataoui ceiling is being woven and the vaulted main hall is getting replastered. "I'm pleased this is happening," says Mr. Muhammad, noticing how the improvements are already enhancing the character of his kasbah nearby.

The situation is much less complicated in cases where kasbahs are restored strictly as private, tourist-oriented business ventures, as happened at nearby Tiffoultoute. But in such instances, the issue of whether kasbahs can again become part of everyday culture and community life is bypassed. "We mustn't try to turn a living village into an historical museum just because it has architectural value," warns Mr. el Farouki. At the same time he understands that reconciling the demands of the present with legacies of the past can be difficult.

It was this tension that led Mr. el Farouki to think that the Centre might adopt a wider goal. "If we train people to restore old earthen houses, why can't we also train them to build new ones?" he asks. "Why not put skills into the hands of people who want to build their own homes using the low-cost materials of rammed earth and adobe brick?"

Such was the vision of the late Egyptian architect Hassan Fathy, whose book, *Architecture for the Poor*, attempts to bridge the gap between traditional aesthetics and contemporary needs. So long as the vast bulk of the world's poor were building their own homes anyway, reasoned Mr. Fathy, why shouldn't the materials used be those that are provided free from the earth and which respect indigenous style?

While how best to meet practical needs is still being debated, southern Morocco's unique architectural legacy is being preserved for future generations. Plans are under way to reconstruct the Ksar el Fida kasbah in Er-Rachidia as a museum of the early Alaouite dynasty. And the kasbahs of Zagora and el-Kelaa M'Gouna have been surveyed and are now ready for community sponsorship and repair.

"Our challenge is to find ways to breath new life into these old buildings," says Mr. el Farouki. "Whether it is an historical monument like Taourirt, an entertainment complex like Tiffoultoute, or a simple revival of village life like we're hoping for in Ait Benhaddou, we've got to find each kasbah's most logical purpose," he says. "Then the technical and community problems will take care of themselves." ■

Louis Werner is a freelance writer and independent filmmaker, specializing in anthropology and development. He is based in New York.

ENVIRONMENT

UNLOCKING THE

BY DENISE BARRICKLOW

SCIENTISTS SEEK NEW WAYS OF TRACKING THE KILLER CURRENT.

Iquique, Chile — A decade ago, a shroud of death buried the shores of this bustling northern coastal city, Chile's main port. Everywhere, mounds of anchovies and sardines lay lifeless on the beaches, the final testament to a valiant but doomed struggle. The fish had swum ashore in a hopeless bid to escape the warm waters of *El Niño*, the mysterious ocean current whose erratic wanderings through the Pacific are famed for wreaking havoc around the world.

"All the fish just disappeared from the sea when the current struck in 1982," recalls Juan Vega Avila, a 68-year-old fisherman from Iquique. "No one could work. It was like the Great Depression. I had to sell my tools, my nets, in order to survive. Many left the profession altogether." In this city of 140,000, located 200 kilometres south of the Peruvian border, local fishermen and scientists are now hoping that new technologies and early warning systems will help defend their country against the wrath of *El Niño*.

Mr. Avila and his colleagues were not the only ones who suffered hard times. In all, more than 100,000 fishermen along the Pacific coast of South America as far north as Colombia lost their jobs. The warm current had killed off the world's largest supply of anchoveta, a type of anchovy that thrives in the normally cool waters off Peru and parts of Chile, Colombia and Ecuador.

But the devastation wrought by *El Niño* in 1982 was not confined to the fishing industry. The warm current was blamed for radical weather changes that affected nearly half the globe, from sandstorms in Australia to cyclones in Tahiti to droughts in Africa to flooding along the California seaboard in the United States.

Along South America's Pacific coast, raging tempests pelted the land. Parts of Peru were deluged with more than 600 times the normal rainfall. The stormy weather destroyed countless hectares of crops and ravaged roads, hospitals, schools and homes. In 1982, *El Niño* cost the region an estimated US$3 billion in infrastructure damages and lost fishing and agricultural revenue.

No one knows precisely when *El Niño* first struck. Historians are dating the phenomenon at least as far back as the early 1500s, when the Spanish conquistadors entered South America amid raging storms. But there are even records of terrible floods sweeping through pre-Columbian communities 400 years before that.

MYSTERIES OF *EL NIÑO*

Denise Barricklow/UNDP

Iquique fishermen.

The name *El Niño*, Spanish for "the child," was adopted by Peruvian fishermen who noticed that the warm water appeared around Christmas, when the Christ child was born. Until this century, *El Niño* was believed to be a South American phenomenon, with no wider ramifications. But recent scientific research has shown how a warming of the Pacific can change the world's weather patterns.

Normally, trade winds from the southeast Pacific blow westerly across, pushing warm water out to sea. When *El Niño* comes along, these trade winds weaken and sometimes change direction, as they did in 1982. No longer dammed up by the winds, the warm Pacific current starts to flow east. When it reaches the South American coast, it kills cold-water fish. The water also warms the air, which lowers the atmospheric pressure and sparks torrential storms along Chile's coast, reaching as far as southern California. The weakened low pressure system also changes rainfall patterns out in the South Pacific, which in turn leads to extensive droughts and massive flooding in other parts of the world.

For years, scientists have sought to determine the cause of this mysterious and destructive phenomenon. Ironically, the 1982 *El Niño* occurred just months after a group of international experts had concurred that conditions were not ripe for it to appear that year. The fact that it did strike – and with a force not seen in over 50 years – made scientists even more determined to solve the riddle.

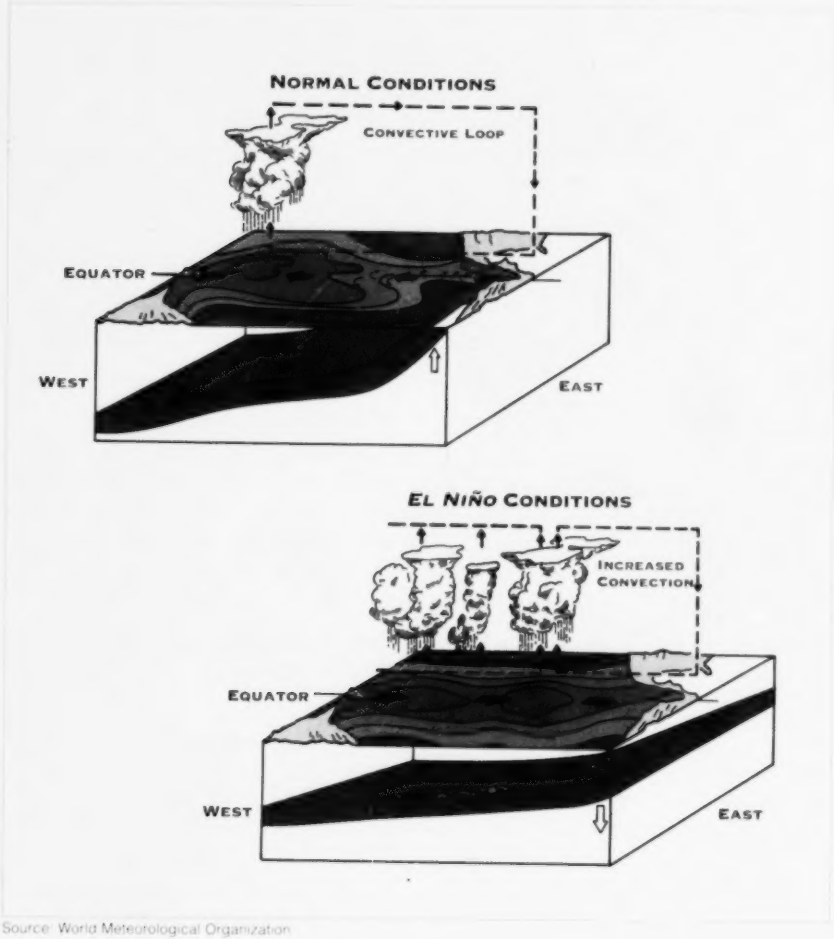
THE DEVASTATION WROUGHT BY *EL NIÑO* IN 1982 WAS NOT CONFINED TO THE FISHING INDUSTRY. THE WARM CURRENT WAS BLAMED FOR RADICAL WEATHER CHANGES THAT AFFECTED NEARLY HALF THE GLOBE.

New theories on *El Niño* have emerged in recent years. Many scientists had previously speculated that *El Niño* was caused by disturbances along the earth's crust, since earthquakes and volcanic eruptions often preceded the phenomenon. But new work with computer models and sophisticated monitoring equipment suggests that the current is not triggered by geological disruptions. Instead, it is part of a naturally occurring cycle in the sea and skies of the South Pacific. Scientists say the latest monitoring efforts have helped them make more reliable *El Niño* predictions.

The main *El Niño* research sponsor in Latin America is the Permanent South Pacific Commission, which supports oceanographic research and governs maritime policy in Chile, Colombia, Ecuador and Peru. The commission currently coordinates the work of 17 different scientific organizations as part of a special study devoted exclusively to the *El Niño* phenomenon.

The study, known by the acronym ERFEN, is funded with the help of a $200,000 grant from the United Nations Development Programme (UNDP). It was launched in the mid-1970s, several years after *El Niño* wiped out what was left of an already over-fished anchoveta population along the coast of northern Chile and Peru, dealing a near-fatal blow to the region's fishing industry. But commission scientists say it was not until 1982 that research into *El Niño* really captured international attention.

"Today, all along the equator, we have more than 200 buoys equipped with wind sensors, satellite transmitters and thermostats," says Alfonso Maguiña Lopez of



Source: World Meteorological Organization

SENAMHI, a meteorological organization in Peru that is working on the ERFEN project. "This monitoring was implemented after 1982 with support from the world agencies because they realized *El Niño* was having a global impact."

By tracking ocean temperature, salinity levels and wind patterns, ERFEN experts say they can now tell when *El Niño* is approaching several months before it hits South America. The commission currently issues bi-monthly bulletins to forewarn fishermen, farmers and government officials about such conditions.

The ability to accurately predict the coming of *El Niño* could have a considerable impact on human development. "If you can forecast *El Niño*, you can shed light on when to expect droughts and floods in various countries," says Michael Glantz of the National Centre for Atmospheric Research in Boulder, Colorado. "The repercussions would be great. You could stockpile water and vaccines to deal with public health threats. You could increase fish and agricultural production."

A case in point occurred in the summer of 1991, after an ERFEN bulletin warned that *El Niño* was on its way. "Last September, the Ecuadorean government decided to stop exporting staple foods such as rice and corn," says Romulo Jordan Sotelo, an official of the Pacific Commission. "They were worried the bad weather might cause a food shortage in their country. This is just one example of how the governments are being made aware and are taking steps."

Mr. Maguiña Lopez says such predictions would be especially beneficial for Peru. "We could learn to make *El Niño* work for us," he says. "If we were to build reservoirs, it could increase our supply of water, which we don't have in the coastal areas and northern desert. We could adjust our fishing to take advantage of the molluscs that come up during *El Niño*. And farmers could plant crops to make use of the increased rainfall."

Fishermen in Peru are already taking this precautionary approach to heart and have begun to diversify and expand their catch. Jorge Saenz Picasso, head of the National Society of Anchovy Fishermen, says his organization has been busy securing foreign loans to build 400-ton vessels with refrigerators so they can catch deep-sea fish, such as shark.

"With this fleet, we will be able to fish the whole year round, so we won't have problems with *El Niño*," says Mr. Saenz Picasso. "If we can do this, when the anchovies come back, we can have both."

For small fishermen like Mr. Avila, who cannot expand their trade as easily, science offers at least some hope for damage control. Armed with foresight culled from sources like the ERFEN bulletins, the fishermen of Iquique for the first time have a chance to defend themselves against an enemy whose greatest power has always been in the surprise attack.

"We are very worried here about *El Niño*" says Mr. Vega Avila. "Many of us went bankrupt in 1982. The government had to give us credit to live on. We don't want to end up in the same position. The next time it comes, we want to be prepared." ■

Denise Barricklow is a New York-based journalist.

Shelter from the Storm

By Denise Barricklow

A new training programme in Venezuela is helping sensitize police to women victims of violence.

Caracas, Venezuela – The story sounds like a scene from a low-budget horror film about renegade cops. A woman is robbed and raped on a city street. She stumbles into a police station seeking help. No one believes her. She is locked up. Later that night, in the solitude of her jail cell, the woman is raped again.

But the tale is not fiction. It recounts a real crime that has occurred time and again in jails around Venezuela. Last year, four police officers were arrested in Caracas on charges of accosting sex crime victims who had come to them for help. Such transgressions may seem shocking, but they reflect a much larger problem.

"We live in a macho society," says Jesus Rafael Caballero, chief of the Metropolitan Police in Caracas. "Therefore many of my people are sexist. They see a woman as weak, as someone to take advantage of sexually. I have had to fire officers because of this."

The desire for change, despite these all-pervasive attitudes, is what prompted Caracas psychologist Elisa Jimenez Armas to form the Venezuelan Association for an Alternative Sexual Education, a group known by the acronym AVESA. "Venezuela has a very high rate of non-reported sexual violence," Ms. Armas says. "In most cases, women are too afraid to report their attack to the police. AVESA was founded in 1984 to offer these victims a place to go."

Besides counselling, AVESA sponsors a series of sex education programmes for different groups, including doctors, teachers, lawyers, social workers, unwed mothers, inner-city teenagers and, most recently, police officers.

The police programme, which was launched with a grant from the UN Development Fund for Women (UNIFEM), teaches participants to become more sensitive to victims of sexual violence. More than 450 police officers – about a fifth of them women – have received training since AVESA began offering the course in April 1990. Last spring, the project was expanded with additional UNIFEM money, bringing its grants to US$62,500.

Experts say programmes like AVESA's are extremely important for the region. "Women are routinely violated throughout much of Latin America, particularly by the police," says Francesca Miller, author of the recently published book, *Latin American Women and the Search for Social Justice*.

"You can trace this pattern back to the left-wing disturbances in the region during the 1960s and 1970s. Female political prisoners were regularly raped. It was very much part of the right-wing, authoritarian style of government...," Ms. Miller says. "This attitude has been adopted by the civil police in countries like Venezuela because there is nothing in the larger culture to restrain it."

AVESA's efforts have paid off. The University of Caracas is starting a similar course for campus security guards. And Mr. Caballero says he wants to incorporate the training into the curriculum of the department's official school.

"I think it's important that my people participate in a programme like AVESA's," he adds. "Right now, many of the violated would rather die than tell the authorities. This has to change. Victims must feel they will have moral support from the police."

Officers who participated in the course say the AVESA training has made a difference in their jobs. "Recently, a 16-year-old girl came for help, saying she had been raped by the husband of her grandmother," recalls Henry Ledezme, a police officer and AVESA trainee. "She told me that the same man raped her when she was nine, but that her grandmother refused to believe it."

The young woman was afraid of reporting the incidents to the police, Mr. Ledezme says, because she thought they would doubt her as well. "I gave her confidence, I made her feel that she was talking to a friend, not to a man who might hurt her," he says. "I wouldn't have treated her that way if it hadn't been for the AVESA course."

The policewomen who participated in the training have benefited as well. "Before, I would tell a victim of domestic violence, 'What did you do? You must have asked for it!'" says police inspector Maria Eugenia Calatayud. "Now I understand that these problems are much more complex, and I treat people more delicately."

Ms. Calatayud says the AVESA training also showed her how deeply ingrained sexism is in Venezuelan society. During the course, she recalls, there were many disagreements between men and women about domestic violence. "Often, the men placed the blame on women, saying that once they had babies they stopped taking care of themselves and rejected sexual advances. So the husbands felt they had a right to beat them."

Illustration: Cathie Bleck

Denise Barrcklow/UNDP

AVESA founder Elisa Jimenez Armas.

The talk proved so provocative that during one of the discussions a female colleague broke down, and told the class her husband had been beating her. "One day she started crying," the inspector says. "The course helped her get out all that sadness."

Currently, Caracas police officers are being urged to work closely with AVESA in rape, child abuse and domestic violence cases. All too often, Mr. Caballero says, sex crime victims have been reluctant to come forward because of the police department's disturbing track record of abuse.

The police chief's suspicion is shored up by statistics. In the first six months of 1990, only 37 cases of sexual violence were reported to the police. Over the same period, 146 sex crime victims sought help from AVESA's three dozen medical and legal professionals.

One of the women who came to AVESA is Carmen Elena Parra, whose five-year-old daughter was sexually molested by a middle-aged doctor. The 33-year-old mother says she sought help after the police refused to believe her story. "The cops just laughed at me," Ms. Parra recalls. "It was terrible, trying to get them to listen. I felt like it was me, not only my daughter, who had been violated."

At AVESA's prodding, Ms. Parra took her case to the media. She contends the move led to the arrest and conviction of her daughter's attacker. Ms. Parra says that she is pleased justice was served, but disturbed that the doctor only served a one-year prison term for the crime. "My daughter is very frightened that she will see him on the street one day," she says.

AVESA has recently begun lobbying for changes in what Ms. Armas insists is an inherently sexist legal system. "The law does not protect women in Venezuela,"

AVESA is lobbying for changes in what Ms. Armas insists is an inherently sexist legal system.

she says. "According to the penal code, a sex crime is not considered a violation of a person, like murder. Instead, it is categorized as a crime against ' good manners and public morals' – although it is still punishable by a jail sentence. It is no wonder we have such serious discrimination going on here."

Ms. Armas adds that the current penal code is so discriminatory, it permits husbands to rape their wives, and offers scant legal recourse for prostitutes who have been sexually molested.

Ms. Calatayud believes that women must learn to take a stand if their cause is to be advanced. "Many of the problems women experience here are partly our own fault," she says. "We don't educate ourselves to help our families overcome poverty. We only take care of housework, and never allow men to participate in these functions."

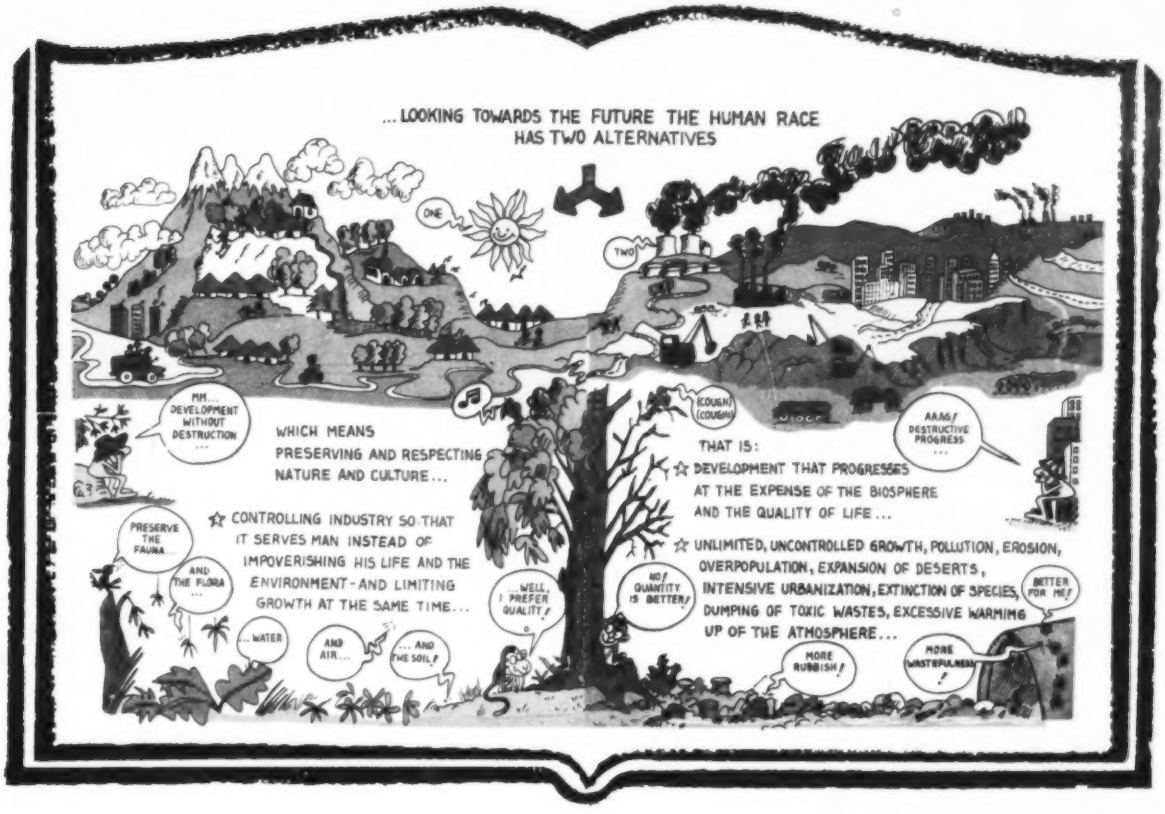
Despite the praise already won by AVESA's sex education programme, some confide that a number of officers pay little attention to what is being taught.

"A lot of the men only wanted to get into the course so they could get out of the office," says Gilberto Enrique Rey-Fernandez, a six-year police veteran.

Even so, the officer believes that many of the important points made during the AVESA course were not lost on his stubborn colleagues. "The training helped broaden their understanding. Now, if a girl comes to them to report a rape they wouldn't say, 'Why were you dressed like that?' They'd think twice before reacting that way."

Venezuela is not alone in searching for new ways of confronting violence against women. The Ministry of Public Security in Costa Rica, for example, is considering adopting a similar training programme and Brazil created an all-female police station in the city of São Paulo in 1985 to encourage women to report these sensitive crimes. The pilot was so successful that, within the last seven years, the number of such stations in São Paulo state has grown to 76. Last year they handled 77,000 cases.

According to Luiza Nagib Eluf, a prosecuting attorney in the city of São Paulo, the establishment of women's police stations constitutes a major step forward in the struggle for justice in Brazil. But, she adds, "this has yet to solve the problem of violence." ■


... LOOKING TOWARDS THE FUTURE THE HUMAN RACE HAS TWO ALTERNATIVES
ONE
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MM... DEVELOPMENT WITHOUT DESTRUCTION ...
WHICH MEANS PRESERVING AND RESPECTING NATURE AND CULTURE...
☆ CONTROLLING INDUSTRY SO THAT IT SERVES MAN INSTEAD OF IMPOVERISHING HIS LIFE AND THE ENVIRONMENT - AND LIMITING GROWTH AT THE SAME TIME...
PRESERVE THE FAUNA...
AND THE FLORA ...
... WATER
AND AIR...
... AND THE SOIL?
...WELL, I PREFER QUALITY.
(COUGH) (COUGH)
THAT IS:
☆ DEVELOPMENT THAT PROGRESSES AT THE EXPENSE OF THE BIOSPHERE AND THE QUALITY OF LIFE...
AAAG! DESTRUCTIVE PROGRESS ...
☆ UNLIMITED, UNCONTROLLED GROWTH, POLLUTION, EROSION, OVERPOPULATION, EXPANSION OF DESERTS, INTENSIVE URBANIZATION, EXTINCTION OF SPECIES, DUMPING OF TOXIC WASTES, EXCESSIVE WARMING UP OF THE ATMOSPHERE...
NO! QUANTITY IS BETTER!
BETTER FOR ME!
MORE RUBBISH!
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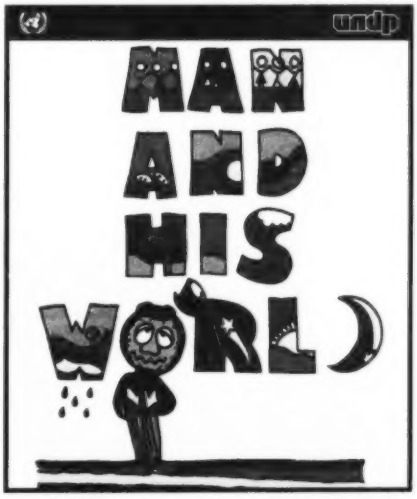

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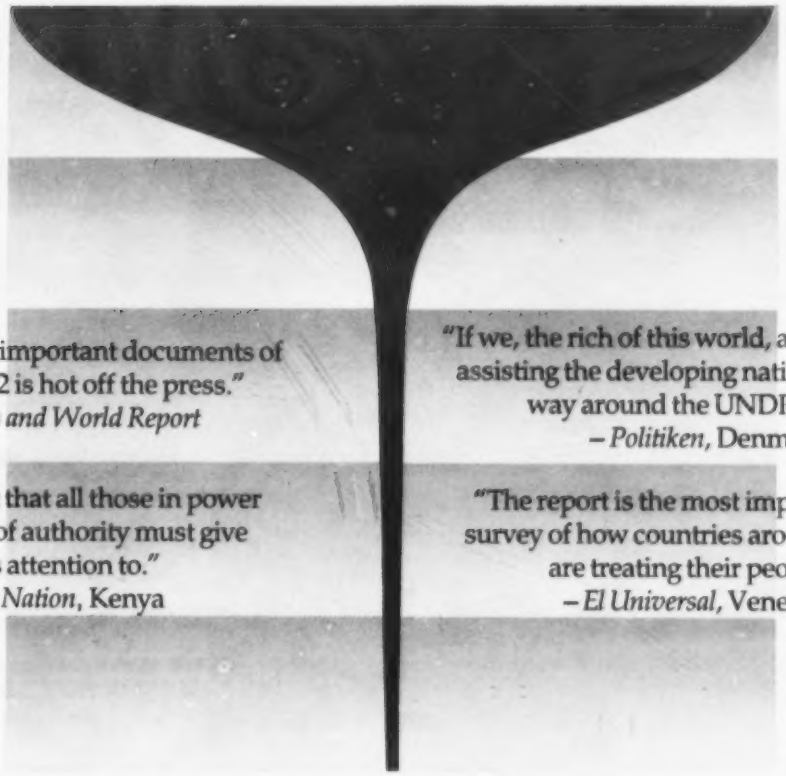

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